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CANADA AND THE INTERNATIONAL MARKET STRUCTURE
FOR PETROLEUM PRODUCTS

BY



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A THESIS

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The undersigned certify that they have read, and
recommend to the Faculty of Graduate Studies for acceptance,
a thesis entitled CANADA AND THE INTERNATIONAL MARKET
STRUCTURE FOR PETROLEUM PRODUCTS
.....
.....
submitted by A. Robert Fraser
.....
in partial fulfilment of the requirements for the degrees of
Master of Arts
.....



ABSTRACT

The oil industry is more international than any other: petroleum is the biggest item in world trade, both by value and by volume. The purpose of this thesis is to determine whether or not Canadian crude oil can be competitive on an international basis given the existing structure and pricing mechanism of the oil industry today.

In an endeavour to project whether or not Canadian crude oil could successfully enter the international scene, an analysis of who controls production, refining and marketing in various selected countries and a review of the pricing mechanism was made. Special treatment was given to Japan throughout the thesis.

It was found in this investigation that Canada must discount her posted price by some 46 per cent to be competitive with Japan's principal supply base, namely the Persian Gulf. In regards to Canadian oil being competitive with oil laid-down in Japan from Venezuela, a discount of 27 per cent was required. Furthermore, it was found that a discount of 41 per cent was needed to gain about 7 per cent of the Japanese market. Given these sizable discounts, the prospects of marketing Canadian crude oil on an international basis does not appear to be all that favourable.

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INTRODUCTION

The oil industry is more international than any other. This prominence results from the fact that with the exception of the United States, Canada and the Soviet Bloc, who are roughly self-sufficient in oil, all the big consuming areas, namely Western Europe and Japan, have no or very little indigenous oil and depend almost entirely on imports. The biggest actual and potential producers of oil, mainly the Middle East and Venezuela, consume relatively minute quantities of it domestically and depend almost entirely on exports. Such Middle East countries with large volumes of exportable oil are Iran, Iraq, Kuwait and the Neutral Zone. The Neutral Zone is the offshore area in and around the Persian Gulf.

Possibilities of other markets, besides the United States, are of definite interest to Canada. This stems from the fact that Canada consumed only about half of its domestic production in 1969. Thus, if Canada's oil industry is to grow and prosper, additional outlets must be found. This is definitely true in the light of the existing import restriction program of the United States.

In an endeavour to determine whether or not other markets, besides the United States, are within the grasp of Canadian producers and/or marketers, various aspects of the petroleum industry will be discussed. First, there is the

question of structure and ownership. It is hoped that a detailed look at the production, refining and marketing stages will help shed some light on this complicated question. The second question is that of price. A review of the pricing mechanism should strengthen one's ability to project Canada's chances of marketing oil on the international scene.

Special emphasis will be given to Japan throughout the thesis. Intuitively, Japan appears to present the best possible outlet for Canadian sales of crude oil. This hypothesis is based on a number of facts. Japan's crude oil requirements by 1985 are expected to increase almost 250 per cent over the 1965 level. This fact alone presents a tremendous challenge to Canadian producers. Japan is three thousands miles closer by sea to the Canadian Port of Vancouver, than is Japan's present main supply base. This fact should definitely reduce transportation charges and thus the laid-down cost of Canadian oil in Japan. Also, it is a well known fact that the Japanese Government has a great fear of letting its industries become foreign controlled. This factor should help to minimize the volume of Japan's "tied" crude oil imports and to increase the amount purchased on the open market.

In an attempt to answer the question of whether or not Canada can compete with the present Japanese suppliers of crude oil, the required discounts of posted prices necessary to gain entry, will be calculated. Posted prices are those stipulated at the wellhead and/or ports in the exporting countries throughout the world. Today, posted prices are not

representative of actual selling prices. They are used only for the calculation of royalties going to the various governments involved. At one time posted prices did have a definite meaning. This was when supply equalled demand. However as soon as supply exceeds demand or other competitive pressures build up, posted prices will not reflect the price at which the sales transaction will take place. It is here where most of the trouble arises in assessing Canada's competitive position. Companies offering discounts to gain entry or hold markets, guard the size of the discounts given with the greatest of secrecy. However, it is hoped that with the information available some definite conclusions concerning Canada's competitive position can be drawn.

CHAPTER I

STRUCTURE OF THE CRUDE PETROLEUM INDUSTRY

This chapter attempts to illustrate the conditions of the international oil industry as they stand today. An outstanding feature of the international oil industry has been the dominant role played by a few major international oil companies. Eight international companies virtually conduct and control the entire petroleum industry. Their extensive control is maintained simply by their collective size and/or joint affiliations with others as well as amongst themselves. The "big eight" includes five American companies, one Dutch, one British and one French company. They are respectively: Esso (Standard Oil Company of New Jersey), Texaco, Gulf, Mobil, Cal Standard (Standard Oil Company of California), Shell, British Petroleum and the Compagnie Francaise des Petroles. Apart from Russia and her controlled countries, these eight petroleum companies directly or indirectly control most of the international oil industry.

Table 1 shows the massive size of the "Internationals" as well as some other prominent oil companies that are also on the international scene. As can be readily seen, Standard Oil of New Jersey and Shell clearly dominate both the sales and asset categories. Sales of the five United States majors

TABLE 1

PROMINENT INTERNATIONAL OIL COMPANIES (1969)

The Big Seven Majors		
Name	Sales (\$m)	Assets (\$m)
Standard Oil (New Jersey)	14,930	17,538
Shell	12,753	18,659
Texaco	6,868	9,282
Mobil Oil	6,622	7,163
Gulf Oil	4,953	8,105
Standard of California	3,825	6,146
British Petroleum	3,260	5,056
Total	53,211	71,949
Other Prominent Oil Companies		
Standard Oil (Indiana)	3,469	5,151
Atlantic Richfield	2,691	4,235
Continental Oil	2,396	2,897
Phillips Petroleum	2,202	3,102
Occidental Petroleum	1,938	2,214
Sun Oil	1,838	2,528
Union Oil California	1,660	2,476
Compagnie Francaise des Petroles	1,561	895
ENI	1,440	4,026
Standard Oil (Ohio)	1,160	1,554
ELF (ERAP)	1,103	896
Total	21,458	29,974

Source: Fortune, May 1970.

totalled over \$37 billion in 1969.¹ Among the top 500 industrial corporations in the United States, Standard Oil of New Jersey ranked second in sales, Mobil Oil seventh, Texaco eighth, Gulf Oil tenth and Standard Oil of California as "one of the majors" ranked eighteenth in sales. The 5 United States majors combined had total assets of over \$48 billion, or almost 20 per cent of the total assets owned by the 20 largest United States Corporations.² In terms of profits, the 5 United States majors ranked even higher among the top 500: Jersey second, Mobil Oil eighth, Texaco fourth, Gulf sixth and Standard of California seventh.

The petroleum industry consists of several separate but related operations. Control of the industry by these eight companies extends from reserves through production, transportation, refining and marketing. All engage in every stage of operation--from exploration to marketing.

In 1949 the United States Senate set up an Inquiry Committee to investigate the monopolistic powers of these companies. At that time the French Company, the Compagnie Francaise des Petroles, was not included.³ The remaining seven investigated are referred to as the "International

¹Fortune, May 1970, p. 184.

²Ibid., p. 185.

³Staff Report to the Federal Trade Commission Submitted to the Subcommittee on Monopoly of the Select Committee on Small Business, United States Senate--The International Petroleum Cartel, John Sparkman, Chairman (Washington, D.C.: United States Government Printing Office, 1952), hereinafter referred to as "The International Petroleum Cartel".

Petroleum Cartel" or simply the "Cartel". Cartel control, as revealed by the Federal Trade Commission, outside of the United States, Mexico and the Soviet Bloc, is summarized by Table 2.⁴

TABLE 2
FREE WORLD CARTEL CONTROL, 1949
(In Per Cent)

Proved reserves	92.0
Production	88.0
Refining	77.0
Cracking	85.0
Petroleum pipelines	100.0
Tanker tonnage	66.6

Thus it can be readily seen that control of the oil from wellhead to the ultimate consumer was dominated, if not completely controlled, by the "Cartel" group in 1949. Although not pointed out in the above figures, these seven major international oil companies have also extended their sphere of control through indirect interlocking directorates. For example, the Federal Trade Commission pointed out that directors of Standard of California interlocked in four separate cases through intermediate corporations with directors of the Union Oil Co. of California.⁵ Although this

⁴Ibid., p. 23 et. passim.

⁵Ibid., p. 31.

association of directors may not be significant, it at least provides an opportunity for reconciling any common interest conflicts which could easily arise between these international firms.

Another outstanding characteristic of the "Cartel" group is its readiness to act together as one in partnerships and joint ventures. This cooperation is particularly evident in the joint production operations in exporting areas such as the Middle East and the Caribbean.

Standard Oil Company of California and the Texas Company each hold a 50 per cent interest in California-Texas Corporation, familiarly known as Caltex. They joined together to conduct joint marketing operations east of the Suez. Caltex now markets throughout the Eastern Hemisphere--excluding West Africa. It now has numerous subsidiaries engaged in transportation, refining and marketing.

In the United Kingdom, Shell-Mex and B.P. Ltd., is a joint marketing operation for the distribution and sale in the United Kingdom of petroleum products of Shell and British Petroleum. It has associated marketing companies in Scotland (Shell and B.P. Scotland Limited) and in Eire (Irish Shell and B.P. Limited).

Joint marketing organizations also exist in India and Pakistan where Burmah Oil Co., Ltd., a member of B.P., and the Shell Petroleum Company have equal share holdings in Burmah-Shell (India) and Burmah-Shell (Pakistan).

Socony Mobil Oil Company Inc., and the Standard Oil Company (New Jersey) each had a 50 per cent interest in

Standard Vacuum Oil Co., known as Stanvac until 1962. They carried on extensive marketing operations in the East of Suez areas. However, the United States Department of Justice considered this arrangement too close and, as a result, it was dissolved and each parent company took over its half interest.

In addition to their outright ownership of reserves and production and distribution facilities, joint ownership arrangements and agreements for purchase and sale (as well as trading), the leading oil companies have also exercised control over the industry through restrictive agreements regarding international marketing. These agreements constituted a series of steps by which the "Cartel" group sought to establish more effective control over distribution and prices throughout the entire world.

From 1928 to 1934 there were four international agreements. "The immediate background for the first international agreement in 1928 was a price war between Royal Dutch Shell and Standard Oil Company"⁶ This price war quickly spread to the United States and European markets and soon threatened the financial interest of all parties concerned.

As a direct result of this "war" of 1928 an agreement among the "majors" was negotiated to prevent similar outbreaks of competition both amongst themselves as well as with others. The agreement was known as the "Achnacarry Agreement" or

⁶Ibid., p. 269.

"As Is". The negotiated agreement was actually a declaration of seven principles. Collectively called "As Is", they were:

1. Acceptance by the participants of their present (1928) volume of business and existing proportion of any further increase in consumption.
2. Joint use of existing facilities.
3. Construction of only such additional facilities as were necessary to supply the increased demand.
4. . . . values of products of uniform specification are the same at all points of origin.
5. Supplies to be drawn from the nearest producing area.
6. Excess of production over consumption to be shut in by producers. . . .
7. Elimination of any competitive measures. . . .⁷

These principles were never formally abandoned. Further subsequent agreements only served to strengthen the ties.

The "Memorandum for European Markets" of 1930, the "Heads of Agreement for Distribution" of 1932 and the "Draft Memorandum of Principles" negotiated in June of 1934 all served to further strengthen the "As Is" agreement of 1928.⁷

However, such agreements are obviously worthless unless cooperation and leadership take place among the most powerful members. Due to the closeness of the "Cartel" group little disagreement actually took place. However, the plans were flexible and where outsiders threatened to play havoc,

⁷Ibid., p. 269.

⁸Ibid., Chapter VIII.

they were usually brought into the pack.

Let us now examine the "Cartel" position in production as of 1968. Table 3 indicates that the Cartel group is still very much the dominant force in the principal exporting countries. In the countries examined, combined individual and joint Cartel groups controlled 90 per cent of all production. Independent oil companies and State controlled companies had 8 and 2 per cent respectively.

Venezuela produced 3,605,000 barrels daily in 1968. Of this total, Esso, Shell, Gulf, Texaco, Mobil and Standard Oil of California produced about 88 per cent. The Independent's share was 12 and the State company "Carvepet" was a mere 1 per cent. Venezuelan Sun, Sinclair Venezuelan, Continental along with Signal Oil and Gas Company were the Independent producers.

Total production in Iran amounted to 2,840,000 barrels per day in 1968. The Cartel share of total production was about 90 per cent. The remaining 330,000 barrels per day was produced by joint State and Independent efforts. The government of Iran held a 50 per cent share in the three companies involved.

In Abu Dhabi, the Cartel Companies were once again the dominant force. During 1968 only two companies were producing here. The Dhabi Petroleum Co. Ltd., and Abu Dhabi Main Areas produced 315,000 and 156,000 barrels per day respectively. The former company is completely dominated by the Cartel group with Shell, CFP, BP and Esso/Mobil each having a 23.75 per cent

TABLE 3

SUMMARY OF SHARE OF CRUDE OIL PRODUCTION BY FIRM OR AGENCY
IN SELECTED COUNTRIES (1968)
('000 Average Daily Barrels)

Country	Total Joint Cartel ^a	Total Individual Cartel	Total Independents	Total State	Total
Venezuela	. . .	3,156	432	17	3,605
Iran	2,510	. . .	165	165	2,840
Abu Dhabi	471	. . .	. .	. .	471
Iraq	1,478	. . .	. .	. .	1,478
Qatar	388	. . .	. .	. .	388
Kuwait	2,421	. . .	. .	. .	2,421
Saudi Arabia	2,830	. . .	. .	. .	2,830
Indonesia	443	. . .	28	90	561
Neutral Zone	. . .	. . .	590	147	737
Total	10,541	3,156	1,215	419	15,331
Per Cent of Total	69	21	8	2	. . .

Source: See Appendix I.

^a"Joint" Cartel production is where two or more members of the Cartel group have a financial interest in the producing company. This is in contrast to "Individual" Cartel production, where members of the Cartel Group produce independently of the others.

TABLE 4

SUMMARY OF PERCENTAGE OF CRUDE OIL PRODUCTION BY FIRM OR AGENCY
IN SELECTED COUNTRIES (1968)

Country	Per cent by Joint Cartel	Per cent by Individual Cartel	Per cent by Independents	Per cent by State	Total
Venezuela	. .	87	12	1	100
Iran	90	. .	5	5	100
Abu Dhabi	100	. .	. .	. .	100
Iraq	100	. .	. .	. .	100
Qatar	100	. .	. .	. .	100
Kuwait	100	. .	. .	. .	100
Saudi Arabia	100	. .	. .	. .	100
Indonesia	79	. .	5	16	100
Neutral Zone	. .	. .	80	20	100

Source: See Appendix A.

interest. The Abu Dhabi Main Areas Company is controlled 66.66 per cent by BP. The French Company, CFP held the remaining interest.

In Iraq, Qatar, Kuwait and Saudi Arabia, total production amounted to some 7,117,000 barrels per day. Production was completely in the hands of the majors as can be seen by reviewing Appendix I.

In both Indonesia and the Neutral Zone the situation was somewhat different. Although Cartel interests produced some 79 per cent of the total, Indonesia's state controlled company Pertamina, produced 16 per cent. Sinclair Oil Company of the United States along with other Independents produced the remaining 5 per cent. The Neutral Zone was completely controlled by the Independents. In 1968 two companies were producing here. The American Independent Oil Company (AMINOIL) produced 58 per cent of the total. This company is controlled 37 per cent by Phillips, 34 by Signal, 14 by Ashland and 15 per cent by Getty. These 4 companies are all United States concerns. The remaining 42 per cent or 305,000 barrels per day was produced by the Arabian Oil Company. Both the Japanese and Arabian governments each hold a 10 per cent interest. Various Japanese Companies hold the remaining 80 per cent.

As can be readily seen from the above discussion, the Cartel group is still the dominant producer in the major exporting countries today as it was in 1949. As previously stated, combined individual and joint Cartel companies controlled about 90 per cent of all production of the countries

examined. This is in bold contrast to the 8 and 2 per cent held by Independent and State controlled companies respectively. As can be seen by quickly reviewing Table 4, joint Cartel production amounted to 100 per cent in Iraq, Abu Dhabi, Qatar, Kuwait and Saudi Arabia. Production by individual Cartel members amounted to 87 and 90 per cent in Venezuela and Iran. ONLY in the Neutral Zone was the Independent the main producer with some 80 per cent of the production in its control.

CHAPTER II

REFINING

In an endeavor to see whether or not the Cartel group of companies still had a stronghold in the refinery division, nine important users of petroleum were observed. The nine countries observed are given below along with refinery capacity and estimated consumption for the years indicated. These countries were selected on a basis of their relative importance as consumers as well as the availability of up-to-date statistics.

	Crude Capacity 1969 ('000 Barrels Per Day)	Consumption, 1969 ('000 Barrels Per Day)
Australia	594	450
Canada	1,356	1,320
Sweden	230	490
France	2,316	1,440
Italy	2,725	1,405
United Kingdom	2,301	1,853
West Germany	2,248	1,973
United States	12,155	13,050
Japan	2,238	2,850

In testing the Cartel dominance, refinery crude runs in barrels per day (refinery capacity) was used as a measure of strength. The above countries, with the exception of Japan, were broken down by refinery plants and then classified

according to particular ownership, that is whether owned by a member or members of the Cartel group, whether owned by an Independent(s) or whether possessed by the State. Japan's refinery division, as depicted by Table 13, does not follow the format as set out for the other countries due to the complexity of ownership and lack of precise data available. A more general approach was used, giving the interests held by American oil companies. A brief discussion of each of these nine countries will now be given, followed by tables giving the refinery ownership and capacity of each country.

Australia

In Australia the Cartel group's share of refining capacity amounted to about 70 per cent of the total. Shell was the leader amongst the Cartel group with crude runs to their refineries of 165,000 barrels per day; BP was second with 137,000 followed by a Mobil/Esso joint venture having capacity of 112,000 barrels daily. In actuality, the Cartel share is perhaps somewhat higher than 70 per cent as two companies classified as Independents, namely Ampol Refineries Ltd. and Australian Refining Co., are affiliated with Caltex of California. The exact relationship is not known. The third Independent, Amoco Australian Pty. Ltd. is fully controlled by American based Independents.

Canada

Cartel interests clearly dominated the Canadian refining

scene. Their degree of ownership totalled some 83 per cent. Imperial Oil Ltd. (owned 70 per cent by Standard Oil Co. of New Jersey) was the largest single refiner with crude runs averaging 421,900 barrels per day. Shell, Gulf, Texaco and BP were the next largest in that order. Sun Oil Co. Ltd., a wholly owned subsidiary of Sun Oil Co. of the United States, was the largest Independent refiner with 103,100 barrels daily. Petrofina Canada, a subsidiary of "Petrofina" S.A., operated one refinery in the province of Quebec with a capacity of 53,000 barrels per day. Irving Refining Ltd., owned 50 per cent by Caltex of California, has one refinery in New Brunswick. Its capacity is 45,000 barrels daily. Other Independents, namely Husky Oil Canada Ltd., Union Oil Co., Golden Eagle Refinery, Consumer's Co-operative Ltd. and Northern Petroleum Corp. Ltd., accounted for about 30 per cent of the remaining Independent's share and only approximately 6 per cent of Canada's total refining capacity.

Sweden

Swedish capacity was 230,000 barrels per day in 1969. Of this total, the Cartel share was 83 per cent. BP Raffinaderi, a subsidiary of British Petroleum Co. Ltd., and Koppertions Olie A.B. (Shell), made up the Cartel total. AB Nyas Petroleum, owned by a Swedish Independent, was the third refiner and accounted for 17 per cent of total capacity.

France

Cartel refinery dominance in France was about 48 per cent of the total based on refinery crude runs. It is to be noted that the French company "Compagne Francaise Des Petroles," owned 35 per cent by the French Government, is classified as a member of the Cartel group of companies. Independent Companies' share and State share amounted to approximately 25 per cent each. British Petroleum (BP) refining capacity amounted to 218,000 barrels per day. BP is by far the largest refiner in France. It is also to be noted that joint ventures are common in France. For example, Cie Raffinage Shell-Berre is a joint venture controlled 60 per cent by Shell and 40 per cent by French Independents. ELF is a state-owned undertaking formed to merge the undertakings of various state enterprises. State share as can be seen from Table 8 is becoming important with its 27 per cent share of refining capacity.

Italy

For the year 1969, refining capacity in Italy totalled 2,724,600 barrels daily. The Independents clearly dominated the scene with capacity of 1,542,200 barrels daily or 56 per cent of the total. Cartel share was 35 per cent. The Cartel share in Italy was the smallest of the 8 countries observed. Raffinerie Sicilano Oil (a wholly owned subsidiary of Standard Oil Co. Of New Jersey) was the largest refiner with 312,000 barrels per day. Shell Italiana had the second largest refinery with 255,000 barrels daily.

United Kingdom

The Cartel group clearly dominated the refinery division of the United Kingdom. Total Cartel ownership amounted to about 88 per cent with Independents holding the remaining 12 per cent. In England the Cartel share was 83 per cent. Shell Oil held 42 per cent of the Cartel share with Esso, BP, Mobil and CFP holding 27, 19, 10 and 4 per cent respectively. Important Independents were Continental Oil Co. Ltd., Phillips-Imperial Petroleum Co. and Lindsey Oil Refinery. Lindsey Oil Refinery is owned equally by CFP and Petrofina.

In Scotland and Ireland the Cartel share was even larger than that in England. BP was by far the largest refiner, producing 134,500 barrels out of a total 138,200 barrels per day.

In Wales the Cartel group dominated the refining section completely. BP produced 180,000, Esso 133,000, Texaco 120,000 and Gulf 80,000 barrels daily.

West Germany

In West Germany, Cartel dominance was 61 per cent with Independents and State share being 35 and 4 per cent respectively. Esso was the leader, followed closely by Shell and BP. Gelsenberg Benzine AG was the only Independent with capacity over 100,000 barrels per day.

United States

As of January 1, 1970, the Independents outpaced the

Cartel group in refining capacity based upon crude runs to refineries. The Independent's share was about 55 per cent with the Cartel share being 45 per cent. In 1969 the United States was the top refining country in the world with over twelve million barrels of crude capacity per day. Humble Oil, a wholly owned subsidiary of Standard Oil of New Jersey, was tops with 1,078,000 barrels per day. American, a wholly owned subsidiary of Standard Oil Company (Indiana), placed second with 971,000 barrels per day. Texaco, Shell, Standard Oil of California, Mobil and Atlantic Richfield followed in that order.

The list of companies having refining capacities in excess of 100,000 barrels per day experienced a number of changes. The top six as depicted by Table 12 showed no change in their relative standings. However, Atlantic Richfield and Standard of Ohio have moved up in the rankings. Atlantic Richfield has moved from tenth to seventh place with Standard of Ohio up from sixteenth to twelfth place.

An interesting fact from Table 12 should be noted. Of the companies refining in the United States, only 20 had capacity of over 1,000 barrels per day. These 20 companies, which include both Independent and Cartel members, are responsible for 84 per cent of the refining capacity.

From the above discussion it can be readily seen that Cartel dominance is very strong in the refining sector. Of the 8 countries observed, Cartel members, acting collectively or individually, controlled more than 60 per cent of all

refining in 5 of these major consuming areas. Only in France, Italy and in the United States was their share below 50 per cent.

Cartel dominance was most pronounced in the United Kingdom with some 88 per cent of the refineries under their control. Both Canada and Sweden followed closely with 83 per cent held by the Cartel group.

It is to be noted that of the 8 countries observed, only in 3 was there any control held by the State. State control was highest in France with some 27 per cent. It was much less pronounced in Italy and in West Germany where State control was 9 and 4 per cent respectively.

Japan

Japan's refinery capacity totalled some 2,237,900 barrels per stream day in 1968.¹ Table 13 shows the great "inter-play" of the American majors. As can be readily seen, Caltex, Esso and Mobil have substantial interests in a number of refineries. Getty Oil Company, an independent American company, also plays a dominant role. A more detailed account of Japan's refinery division will be given in Chapter VI in the hope of shedding some light on the prospects of marketing Canada's crude oil in this country.

¹Barrels per stream day is calculated by dividing the total number of barrels of crude oil consumed by the number of days the refineries have worked.

TABLE 5

OWNERSHIP AND CAPACITY OF REFINERIES IN AUSTRALIA, 1969

Refinery	Total Capacity ('000 B/D)	Cartel Share ('000 B/D)	Independent Share ('000 B/D)
Amoco Australia Pty. Ltd.	25	. .	25
Ampol Refineries Ltd.	45	. .	45
Australian Oil Refining	90	. .	90
Boral Ltd.	20	. .	20
BP Refinery (Kwinana) Pty. Ltd.	87	87	. .
BP Refinery (Westernport) Pty. Ltd.	50	50	. .
Petroleum Refineries (Australian) Pty. Ltd. ^a			
Altona	65	65	. .
Adelaide	47	47	. .
Shell Refining Pty. Ltd.			
Clyde	60	60	. .
Geelong	105	105	. .
Total	594	414	180
Per Cent of Total	. .	70	30

Source: Oil & Gas Journal, December 31, 1969.

^aMobil Oil holds 74 per cent interest and Esso 12.6 per cent.

TABLE 6

OWNERSHIP AND CAPACITY OF REFINERIES IN CANADA, 1969

Refinery	Total Capacity ('000 B/D)	Cartel Share ('000 B/D)	Independent Share ('000 B/D)
Gulf Oil Canada Ltd.	189.4	189.4	. .
Imperial Oil Ltd.	421.9	421.9	. .
Shell Canada Ltd.	240.5	240.5	. .
Texaco Canada Ltd.	129.5	129.5	. .
Chevron Canada Ltd. (Standard Oil California)	18.0	18.0	. .
Irving Refining Ltd. (50% Caltex)	45.0	22.5	22.5
Husky Oil Canada Ltd.	10.0	. .	10.0
Union Oil Co. of Canada Ltd.	7.6	. .	7.6
Golden Eagle Refining	11.3	. .	11.3
BP Refinery Canada Ltd.	104.0	104.0	. .
Sun Oil Co. Ltd.	103.1	. .	103.1
Petrofina Canada	53.0	. .	53.0
Consumer's Co-operative Ltd.	21.5	. .	21.5
Northern Petroleum Corp. Ltd.	1.1	. .	1.1
Total	1,355.9	1,125.8	230.1
Per Cent of Total	. . .	83	17

Source: Oil & Gas Journal, December 31, 1969.

TABLE 7

OWNERSHIP AND CAPACITY OF REFINERIES IN SWEDEN, 1969

Refinery	Total Capacity ('000 B/D)	Cartel Share ('000 B/D)	Independent Share ('000 B/D)
AB Nyas-Petroleum	40	. .	40
BP Raffinaderi	100	100	. .
Koppertions Olie A.B. (Shell)	90	90	. .
Total	230	190	40
Per Cent of Total	. .	83	17

Source: Oil & Gas Journal, December 31, 1969.

TABLE 8

OWNERSHIP AND CAPACITY OF REFINERIES IN FRANCE, 1969

Refinery	Total Capacity ('000 B/D)	Cartel Share ('000 B/D)	Independent Share ('000 B/D)	State Share ('000 B/D)
Valenciennes	78	. .	. .	78
Antar Petroles de l'Atlantique	100	19	53	28
Compagnie de la Raffinerie de l'le de France	75	. .	. .	75
Cie Francaise de Raffinage	325	163	162	. .
La Mede	232	116	116	. .
Cie Raffinage Shell Berre	165	100	65	. .
Pauillac	18	11	7	. .
Petit Couronne	180	110	70	. .
Cie Rhenane de Raffinage	80	80	. .	. .
ELF Rhone Alpes	131	. .	. .	131
ELF Union	70	. .	. .	70
Esso Standard S.A.	150	90	60	. .
Bordeau	56	34	22	. .
Fos-sur-Mer	60	36	24	. .
Mobil Oil Francaise, Gravenchon	78	78	. .	. .
Frontignan	42	42	. .	. .
Ste. Francaise des Petroles BP:				
Dunkirk, Lewera and Vernor	218	218	. .	. .
Ste. Raffinerie de Strasbourg	88	28	. .	60
Union Industrielle (ELF)	40	. .	. .	40
Total	2,316	1,125	579	482
Per Cent	. . .	48	25	27

Source: Oil & Gas Journal, December 31, 1969.

TABLE 9

OWNERSHIP AND CAPACITY OF REFINERIES IN ITALY, 1969

Refinery	Total Capacity ('000 B/D)	Cartel Share ('000 B/D)	Independent Share ('000 B/D)	State Share ('000 B/D)
Amoco Italia, SPA	100.0	. .	100.0	
ANIC, SPA	175.0	. .		175.0
Anomina Petroli Italiani (API)	65.0	. .	65.0	. .
Aquila, SPA	62.0	62.0	. .	. .
Garrone	140.6	. .	140.6	. .
Industria Chimiche Italiane	82.0	. .	82.0	. .
Industria Raffena- zione Oil	90.0	44.1	. .	45.9
Mediterranean SPA	225.0	. .	225.0	. .
Mobil Oil Italiana	115.0	115.0	. .	. .
Raffineria di Roma	85.0	21.4	63.6	. .
Raffineria Sarde	270.0	. .	270.0	. .
Raffinerie Sicilano Oil	312.0	312.0	. .	. .
Ste Sardoil Porto Torres	120.0	. .	120.0	. .
Shell Italiana	255.0	255.0	. .	. .
Soc. Industriale Catonese	160.0	. .	160.0	. .
Societa Azionario Raffinazione	162.0	. .	162.0	. .
Stanic Industria Petroliifera	154.0	. .	154.0	. .
Sta. per Azioni Raffineria Padana	152.0	152.0	. .	. .
Total	2,724.6	961.5	1,542.2	220.9
Per Cent	. . .	35	56	9

Source: Oil & Gas Journal, December 31, 1969.

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TABLE 10

OWNERSHIP AND CAPACITY OF REFINERIES
IN THE UNITED KINGDOM, 1969

Refinery	Total Capacity ('000 B/D)	Cartel Share ('000 B/D)	Independent Share ('000 B/D)
ENGLAND			
Berry Wiggins & Co. Ltd.	9.8	1.2	8.6
BP Refinery (Kent) Ltd.	239.0	239.0	. .
Continental Oil Co. Ltd.	85.0	. .	85.0
Esso Petroleum Co. Ltd.	363.0	363.0	. .
Lindsey Oil Refinery	130.0	65.0	65.0
Burmah Oil Trading, Ltd.	10.5	. .	10.5
Mobil Oil Co. Ltd.	130.0	130.0	. .
Phillips-Imperial Petroleum	110.0	. .	110.0
Philmas Oils Ltd.	7.8	. .	7.8
Shell Refining Co. Ltd.	564.0	564.0	. .
Total England	1,649.1	1,362.2	286.9
Per Cent of Total	. . .	83	17
SCOTLAND AND IRELAND			
BP Refinery Ltd.	134.5	134.5	. .
Briggs, Wm. & Sons Ltd.	1.6	. .	1.6
Shell Refining Co. Ltd.	3.7	3.7	. .
Total Scotland and Ireland	139.8	138.2	1.6
Per Cent of Total	. .	92	8
WALES			
BP Refining Ltd.	179.5	179.5	. .
Esso Petroleum Co. Ltd.	133.0	133.0	. .
Gulf Oil Refining Ltd.	80.0	80.0	. .
Texaco Refining Co.	120.0	120.0	. .
Total Wales	512.5	512.5	. .
Per Cent of Total	. .	100	. .
Total United Kingdom	2,301.4	2,012.9	288.5
Per Cent of Total	. . .	88	12

Source: Oil & Gas Journal, December 31, 1969.

TABLE 11
OWNERSHIP AND CAPACITY OF REFINERIES
IN WEST GERMANY, 1969

Refinery	Total Capacity ('000 B/D)	Cartel Share ('000 B/D)	Independent Share ('000 B/D)	State Share ('000 B/D)
BP Benzin und Petroleum	290.6	290.6	. .	. .
Caltex Deutschland GmbH	95.5	95.5	. .	. .
Deutsche Erdol	63.6	63.6	. .	. .
Deutsche Shell	339.4	339.4	. .	. .
ELF Mineralol GmbH	46.7	. .	14.0	32.7
Deutsche Marathon Petroleum	42.4	. .	42.4	. .
Erdolraffinerie Ingolstadt	65.0	. .	. .	65.0
Erdol-Raffinerie	76.4	. .	76.4	. .
Erdoel-Raffinerie	74.2	. .	74.2	. .
Erdolwerke Frisia	50.9	. .	50.9	. .
Esso	455.3	455.3	. .	. .
Fina Raffinerie	42.4	. .	42.4	. .
Gelsenberg Benzine	148.5	. .	148.5	. .
Gewerkschaft Erdol-Raffinerie	54.1	. .	54.1	. .
Gewerkschaft Erdoel-Raffinerie	79.5	. .	79.5	. .
Oberrheinesche Mineralolwerke	132.6	132.6	. .	. .
Verba-Chemie	89.1	. .	89.1	. .
Union Rheinesche	101.8	. .	101.8	. .
Total	2,248.0	1,377.0	773.3	97.7
Per Cent	. . .	61	35	4

Source: Oil & Gas Journal, December 31, 1969.

TABLE 12

OWNERSHIP AND CAPACITY OF REFINERIES
IN THE UNITED STATES, 1969

Refinery	Total Capacity ('000 B/D)	Cartel Share ('000 B/D)	Independent Share ('000 B/D)
Humble	1,078	1,078	. . .
American	971	. . .	971
Texaco	960	960	. . .
Shell	943	943	. . .
Standard (California)	835	835	. . .
Mobil	814	814	. . .
Atlantic Richfield	698	. . .	698
Gulf	675	675	. . .
Union	495	. . .	495
Sun	454	. . .	454
Phillips	390	. . .	390
Standard (Ohio)	357	178	179
Continental	263	. . .	263
Cities Service	261	. . .	261
Ashland	246	. . .	246
Marathon	159	. . .	159
Getty	140	. . .	140
Coastal States	133	. . .	133
Hess	117	. . .	117
Clark	100	. . .	100
Others	2,066	. . .	2,066
Total	12,155	5,483	6,672
Per Cent of Total	. . .	45	55

Source: Oil & Gas Journal, April 6, 1970, p. 113.

TABLE 13

JAPAN'S REFINERY CAPACITY AND OWNERSHIP
(September 1968)

Company	Capacity (b/sd)	American Ownership
Nippon Mining	109,350	Caltex Interests
Nichimo Oil	57,000	70 per cent owned by Toa Nenryo Kogyo-- see below
Nippon Oil	15,800	Caltex Interests
Nippon Petroleum	232,000	Caltex Owns 50 per cent
Toa Nenryo Kogyo	230,500	Esso & Mobil each hold 25 per cent
Toa Oil	50,000	Esso & Mobil each hold 25 per cent
Daikyo Oil	115,000	Associated with Nippon Mining which has Caltex interests
Koa Oil	148,300	Caltex owns 50 per cent
Mitsubishi Oil	204,440	Getty and Mission own 49.7 per cent
Showa Oil	102,000	Shell Group--50 per cent
Showa Yokkaichi Oil	180,000	50 per cent Showa Oil (see above) 25 per cent Shell and 25 per cent Mitsubishi (see above)
General Sekiyo Seisei	115,000	Esso owns 50 per cent
Others	1,159,390	
	1,178,510	
Total	2,237,900	

Source: Walter R. Skinner, Oil & Petroleum Year Book
(London: Eden Fisher 'Southend' Ltd., 1968), various pages.

CHAPTER III

MARKETING

This chapter attempts to reveal who controls the distribution of petroleum products in various selected countries. The following six countries were observed: West Germany, the United Kingdom, the United States, France, Canada and Japan. The above countries were selected on the basis of the magnitude of petroleum sales and also on the availability of statistics. In all countries except the United States and France, the number of retail outlets held was used as a measure of control. It is admitted that this measure is perhaps not all that indicative of market power, but due to the lack of better statistics it was found necessary to use it. Market control in both the United States and France was estimated in terms of gasoline gallonage sold. A brief look at each country will now follow.

West Germany

Marketing in West Germany is a big and very competitive business. Gasoline sales for 1968 amounted to about 12.8 million tons.¹ The Cartel share was figured to be approximately 58 per cent of the market based upon the number of

¹"Cheap Fuel for German Motorists", Petroleum Press Service, June 1969, p. 209.

retail outlets held. Independents were found to have 41 per cent and State about 1 per cent. Aral AG had the largest number of outlets with over 7,600 outlets out of a total of some 46,684 stations in 1969 (see Table 14). Mobil Oil holds a 27.9 per cent interest in Aral AG. German interests hold the remaining 72.1 per cent. After Aral AG, Shell, Esso, BP and Texaco have the most outlets per brand with 6,310, 6,230, 4,900 and 4,810 stations respectively.

The number of service stations and other outlets for motor gasoline more than doubled from about 23,000 in late 1955 to 46,700 in 1969.² However, stations tied to suppliers who were already in business in the mid-1950's increased in number by only about a third to 31,200.³ Of the remaining 15,500 outlets it has been estimated that 5,800 were run by cut-price dealers. Their estimated 20-22 per cent of the market, up from 15 per cent in 1967, was considerably more than their share in the total number of outlets.⁴

The total number of retail outlets increased by a mere 442 during 1969. However, special note must be made of the fact that the smaller chains (shown as others and assumed to be Independents) have acquired more than 1,000 new outlets. Of the long established firms with over 4,000 outlets in 1968, only Aral and BP increased their number of outlets in

²Ibid., p. 209.

³Ibid.

⁴Ibid.

1969. Shell, Esso and DEA (Texaco) all decreased in number. Over 1,500 DEA stations were closed during the 1968-1969 period.⁵

Of the estimated 5,800 cut-price dealers, most are independent traders who often earn a satisfactory return due to their high turnover and low overhead. Most of these outlets do not provide the services that other stations do and are located in towns on the major traffic centers.

Cut-price dealers first started to make an impact on the market in 1966. The long established oil companies soon counteracted by redividing their market into a larger number of geographical zones and reduced prices sharply where competition was hottest. The price cutters survived these measures but their growth was sharply reduced. Meanwhile, there developed a new and more powerful type of cut-price competition. It came mainly from the super-markets and cash-and-carry shops. These new outlets usually did not carry gasoline with the objective of making a profit, but with the hope that it might attract new customers to their stores.

Of the 5,800 cut-price outlets at the beginning of this year, it is estimated that about 900 were attached to super-markets or cash-and-carry shops, and this small number is said to have accounted for around 40 percent of all cut-price sales, or for 8-9 percent of the total volume of gasoline sales in the country. In the immediate neighbourhood of the new outlets, the sale of branded gasoline, and of other goods and services offered in garages, was falling dramatically.⁶

⁵Ibid., p. 210.

⁶Ibid.

The typical price-cutter undercut the main brands by perhaps as much as three or four pfennings per litre (about six to eight cents per Canadian gallon).⁷ This would appear to be an appropriate discount in face of the fact that fewer services were offered. However, super-markets and other cash-and-carry shops have discounted prices as much as nine pfennings (about \$0.15 per gallon).⁸

Faced with this new threat provided by the super-markets the established oil stations led by Esso, renegotiated their agreements with most of their retailers. This led to sharply differentiated price cuts at various outlets. Reductions amounted to over \$0.15 per gallon in many cases. These reductions were borne primarily by the wholesalers. Retail margins have not been significantly lowered and still are reported to be much higher than comparable countries of Western Europe.⁹

The well established majors have accepted these price reductions in the interest of maintaining a high share of the market. However, main distributors try by all means possible to avoid price wars. Of recent, old established firms are trying to maintain their market shares by the building of large and modern stations and by concentrating their marketing outlets in heavy-traffic areas.

⁷ Ibid., p. 210.

⁸ Ibid.

⁹ Ibid.

TABLE 14

NUMBER AND OWNERSHIP OF MARKETING OUTLETS
IN WEST GERMANY, 1969

Marketer	Total Number Outlets	Cartel Share Outlets	Independent Share Outlets	State Share Outlets
Aral (Gelsenkirchener Bergwerks, Hibernia and Mobil Oil AG each hold 27.9 per cent and Wintershell AG, 15 per cent)	7,610	2,123	5,487	. .
Shell	6,310	6,310	. . .	. .
Esso [Wholly owned by Standard (New Jersey)]	6,230	6,230	. . .	. .
BP	4,900	4,900	. . .	. .
Gasolin (subsidiary of Aral)	3,550	990	2,560	. .
DEA (Texaco 97.6)	3,300	3,300	. . .	. .
Caltex (361), Chevron (803) and Texaco (1,510)	2,674	2,674	. . .	. .
Avia	1,173	. . .	1,173	. .
Fina	1,005	. . .	1,005	. .
Total	850	850	. . .	. .
Stinnes Fanal (VEBA)	816	. . .	816	. .
Frisia	685	. . .	685	. .
Delfin (Merk)	492	. . .	492	. .
Agip (84 per cent held by ENI)	415	. . .	66	349
Montan-Union	371	. . .	371	. .
Continental	360	. . .	360	. .
Others such as Occidental (239) Amoco (298) etc.	5,943	. . .	5,943	. .
Total	46,684	27,377	18,958	349
Per Cent of Total	. . .	58	41	1

Source: Petroleum Press Service, June 1969, p. 210.

France

Market dominance based upon the number of retail outlets held is clearly in the hands of the Cartel group of oil companies. The CFP group is by far the leader with about 13,000 outlets followed next by Jersey Standard, Shell, Caltex, BP, Mobil and Petrofina in that order.

TABLE 15

NUMBER AND OWNERSHIP OF MARKETING OUTLETS
IN FRANCE, 1969

Marketer	Total Retail Outlets	Cartel Share Outlets	Independent Share Outlets	State Share Outlets
AGIP	8	. . .	. . .	8
BP	3,520	3,520	. . .	. .
CFP	12,958	12,958	. . .	. .
Caltex	4,153	4,153	. . .	. .
Jersey Standard	7,000	7,000	. . .	. .
Mobil	2,117	2,117	. . .	. .
Petrofina	2,105	. . .	2,105	. .
Shell	6,086	6,086	. . .	. .
Texaco ^a	. . .	. . .	. . .	. .
Others	5,000	. . .	5,000	. .
Total	42,947	35,834	7,105	8
Per Cent of Total	. . .	83	17	. .

Source: National Petroleum News, The Magazine of Oil Marketing, Mid-May 1970, p. 110.

^aTexaco's share is not reported.

The gasoline market share held by the Cartel group which includes CFP was 61.4 per cent in 1969 (see Table 16), Independents and State shares were 24.7 and 13.9 per cent respectively. Compagnie Francaise De Raffinage (50 per cent owned by CFP) was the market leader with 26.2 per cent. Shell, Esso, BP and Mobil each held 16.5, 15.6, 8.5 and 6.0 per cent respectively. ELF, a wholly owned State enterprise held 11.3 per cent. Antar, the largest of Frances' biggest Independents was taken over by a consortium at the end of March 1970 (see Table 16 for exact percentage now held).

TABLE 16

PERCENTAGE SHARE OF GASOLINE MARKET HELD BY
DISTRIBUTORS IN FRANCE, 1969

Marketer	Total Percent- age Held	Cartel Share Per Cent	Independent Share Per Cent	State Share Per Cent
CFR (50 per cent owned by CFP)	26.2	13.1	13.1	. .
ELF	11.3	. .	. .	11.3
Antar (Socal, Texaco and CFP 19, State 28 and Indepen- dents 53 per cent)	9.1	1.7	4.8	2.6
Shell	16.5	16.5	. .	. .
Esso	15.6	15.6	. .	. .
BP	8.5	8.5	. .	. .
Mobil	6.0	6.0	. .	. .
Petrofina	3.7	. .	3.7	. .
Other Independents	3.1	. .	3.1	. .
Total	100.0	61.4	24.7	13.9

Source: Petroleum Press Service, May 1970.

The French government exercises tight control over all phases of marketing. Government influence extends not only to pricing but even to the number and location of service station buildings.¹⁰ An example of government intervention can best be shown by its actions in 1968. The French Government deliberately carved out a piece of the market for AGIP, an Italian State enterprise. This marked the first time that newcomers were permitted in the marketing end.¹¹

France, like its European neighbours, is almost totally dependent on crude oil imports. Last year (1969) imports rose by some 9 million tons to reach 86.3 million.¹² Her main sources of supply are the Middle East and also Africa. Minute quantities are also imported from the Caribbean and the Soviet Bloc. The proportion of oil coming from the Middle East dropped to 45 per cent in 1969 from almost 49 per cent a year earlier.¹³ Libyan supplies jumped 3 percentage points to bring its total share to 17 per cent of crude imports.¹⁴

The net amount of oil received by CFP, Compagnie Francaise des Petroles, in 1967 from Middle East participations

¹⁰ National Petroleum News, The Magazine of Oil Marketing, Mid-May 1966, p. 93.

¹¹ Ibid., p. 104.

¹² Petroleum Press Service, March 1970, p. 88.

¹³ Ibid., p. 88.

¹⁴ Ibid.

was about 31 million tons; from Sahara about 11 million tons.¹⁵ Crude oil production by the ELF group was approximately 20 million tons.¹⁶ The combined totals of CFP and the ELF groups amounted to about 83 per cent of France's total crude imports of 75 million tons in 1967.

United Kingdom

It is not surprising to find that the Cartel group dominates the marketing scene in the United Kingdom. Their market share based upon the number of retail outlets was about 81 per cent. This figure does not vary significantly from their refining share of 88 per cent.

During 1969, gasoline sales by dealers were in the order of 12 million tons.¹⁷ "The average throughput per filling station is now as high as 95,000 gallons a year, though about 20 per cent of them are still selling less than 20,000 gallons annually."¹⁸

Shell-Mex and B.P. Ltd. clearly dominated the marketing scene with over 40 per cent of all the 37,531 retail outlets. Esso, Texaco, Mobil and Fina were the only other marketers with over 1,000 stations. Fina (a subsidiary of Petrofina of Belgium) has refinery capacity interests through its 50 per cent ownership of Lindsey Oil Refinery. McMullans Ltd. is

¹⁵ Skinner, op. cit., p. 198.

¹⁶ Petroleum Press Service, February 1970, p. 55.

¹⁷ Petroleum Press Service, April 1970, p. 146.

¹⁸ Ibid.

the only Independent marketer in the United Kingdom which is not a fully integrated company. McMullans are distributors of petroleum products and lubricating and fuel oils in Ireland. Their market share based on retail outlets is less than 1 per cent.

It is to be noted that not all marketers in the United Kingdom (see Table 17) have refining capacity there. Oil companies with no refining capacity are Atlantic, Tenneco, Occidental, Murco (a wholly owned subsidiary of Murphy Oil Corp.), Ultramar, Chevron (Standard Oil of California) and Amoco (Standard Oil of Indiana). Their combined share of the market is about 7 per cent.

United States

The United States was by far the largest consumer of gasoline with almost 89 billion gallons being consumed. In an effort to determine the extent of Cartel dominance in American marketing scene twelve states were observed. These were California, Texas, Illinois, Florida, New Jersey, Missouri, Georgia, Washington, Colorado, Oregon, Arizona and Nevada. These states ranked 1, 3, 5, 8, 9, 12, 13, 23, 29, 31, 33 and 45 respectively in terms of gallonage sold. The above States were chosen in the light of available statistics. The Cartel group's share was determined by multiplying each retailers' market share per state by the total gallonage sold in each particular state and then summing each retailers' share over the number of states.

TABLE 17

NUMBER AND OWNERSHIP OF MARKETING OUTLETS
IN THE UNITED KINGDOM, FEBRUARY 1970

Marketer	Total Number Outlets	Cartel Share Outlets	Independent Share Outlets
Shell-Mex and B.P. Ltd.	16,200	16,200	. . .
Esso/Cleveland (Cleveland is a wholly owned subsidiary of Esso)	8,540	8,540	. . .
Texaco	3,500	3,500	. . .
Mobil	1,500	1,500	. . .
Fina	1,400	. . .	1,400
Burmah Group	924	. . .	924
Continental	875	. . .	875
VIP (Occidental)	776	. . .	776
Total	700	. . .	700
Murco Group (Wholly owned by Murphy Oil Corp.)	563	. . .	563
Atlantic Group	447	. . .	447
Tenneco Group ^a	355	. . .	355
Amoco	318	. . .	318
McMullans	237	. . .	237
Gulf	233	233	
Ultramar/Summit	161	. . .	161
Chevron	150	150	
ICI	140	. . .	140
Others ^b	512	. . .	512
Total	37,531	30,123	7,408
Per Cent of Total	. . .	81	19

Source: Petroleum Press Service, April 1970, p. 146.

^a Amoco is a member of the Standard Oil Co. (Indiana) group of companies.

^b All remaining outlets are classified as Independents due to lack of information to the contrary.

Of the twelve states observed, the Cartel share was about 58 per cent. Cartel companies shared the top five positions. Shell and Texaco were the market leaders with each selling over three billion gallons. Humble (100 per cent owned by Standard Oil of New Jersey), Socal and Gulf followed with sales of 2.6, 2.3 and 2.26 billion gallons, respectively. Mobil, also a member of the Cartel group ranked seventh with just over two billion gallons in sales. The largest Independent marketer was ARCO (Atlantic Richfield Company). ARCO ranked sixth in sales. Other Independents who sold in excess of one billion gallons were Standard Oil of Indiana, Phillips and Union.

Canada

The number of gasoline outlets in Canada was 43,206 in 1968.¹⁹ This total is down by some 3,800 outlets from a 1965 peak of almost 47,000. "This four-year decrease--which appears to be slowing--has cut the number of outlets by 8 per cent between 1965 and 1968, while gasoline sales increased 19 per cent and vehicle registrations increased 17 per cent."²⁰ Quebec and Ontario accounted for about 60 per cent of all gasoline outlets, the Atlantic Provinces about 7 and the Prairie Provinces and British Columbia about 30 per cent.²¹

¹⁹ National Petroleum News, The Magazine of Oil Marketing, Mid-May Factbook Issue, 1970, p. 117.

²⁰ Ibid., p. 118.

²¹ Ibid.

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TABLE 18

PERCENTAGE SHARE OF GASOLINE MARKET HELD BY DISTRIBUTORS
IN TWELVE SELECTED AMERICAN STATES, 1969

Marketer ^a	Total Gallons ('000 gal.)	Cartel Share ('000 gal.)	Independent Share ('000 gal.)
Shell	3,435,211	3,435,211	. . . . .
Texaco	3,099,964	3,099,964	. . . . .
Humble (100 per cent owned by Standard New Jersey)	2,566,268	2,566,268	. . . . .
Socal	2,301,794	2,301,794	. . . . .
Gulf	2,259,488	2,259,488	. . . . .
AROC (Atlantic Rich- field Company)	2,129,251	. . . . .	2,129,251
Mobil	2,106,307	2,106,307	. . . . .
American (100 per cent Standard Indiana)	1,647,360	. . . . .	1,647,360
Phillips	1,500,228	. . . . .	1,500,228
Union	1,264,777	. . . . .	1,264,777
Kyso (Standard California)	726,630	726,603	. . . . .
Conoco (Continental Oil Co.)	498,399	. . . . .	498,399
Signal Oil & Gas	478,195	. . . . .	478,195
Sun	449,525	. . . . .	449,525
Fina	381,426	. . . . .	381,426
Cities Services	371,883	. . . . .	371,883
BP	350,036	350,036	. . . . .
Shamrock	325,980	. . . . .	325,980
Marathon	303,594	. . . . .	303,594
Pure (Union Oil of California)	291,262	. . . . .	291,262
Hess	257,690	. . . . .	257,690
Tenneco	246,463	. . . . .	246,463
Clark	236,133	. . . . .	236,133
Chevron (Standard California)	187,022	187,022	. . . . .
Powerine	181,195	. . . . .	181,195
Skelly	146,031	. . . . .	146,031
Golden Eagle (Ultra- mar	142,256	. . . . .	142,256
DX (Sun Oil Company)	122,574	. . . . .	122,574
Murphy	112,349	. . . . .	112,349
Triangle	100,667	. . . . .	100,667
Martin	95,242	. . . . .	95,242
Crown Central	77,430	. . . . .	77,430

--continued--

TABLE 18 - Continued

Marketer*	Total Gallons ('000 gal.)	Cartel Share ('000 gal.)	Independent Share ('000 gal.)
LaGloria	77,354	. . . . .	77,354
Bulko	72,731	. . . . .	72,731
Union Texas	71,065	. . . . .	71,065
Foremost	66,034	. . . . .	66,034
Super Test	62,467	. . . . .	62,467
Getty	57,039	. . . . .	57,039
Little America	37,988	. . . . .	37,988
Sing	35,756	. . . . .	35,756
Husky	35,729	. . . . .	35,729
Hood	32,268	. . . . .	32,268
APCO	31,626	. . . . .	31,626
Derby	28,916	. . . . .	28,916
Colonial	27,690	. . . . .	27,690
MFA	27,008	. . . . .	27,008
Zephyr (J.D. Street & Co. Inc.)	21,285	. . . . .	21,285
Coops	20,740	. . . . .	20,740
Oriental	13,039	. . . . .	13,039
Kerr McGee	10,241	. . . . .	10,241
Great Northern	10,141	. . . . .	10,141
Total	29,131,747	17,032,720	12,099,027
Per Cent of Total	. . . . .	58	42

Source: National Petroleum News, The Magazine of Oil Marketing, Mid-May 1970, p. 142.

^aThe twelve States observed were California, Texas, Illinois, Florida, New Jersey, Missouri, Georgia, Washington, Colorado, Oregon, Arizona and Nevada.

An interesting statistic can be observed by examining both the volume of gasoline sold and the number of outlets in various metropolitan areas in Canada. The 7,255 outlets represented only 17 per cent of the total number but their share of the gasoline sales was over 40 per cent!

TABLE 19
RETAIL GASOLINE STATISTICS BY SELECTED
METROPOLITAN AREAS IN CANADA, 1968

Area	Outlets	Gallonage (Add '000)
Montreal	2,215	499,903
Ottawa-Hull	433	90,551
Toronto-Hamilton	2,304	540,140
Winnipeg	483	88,770
Regina	127	27,873
Calgary	382	71,794
Edmonton	353	74,322
Vancouver	958	183,009
Total	7,255	1,526,362

Source: National Petroleum News, The Magazine of Oil Marketing, Mid-May 1970, p. 118.

If one excludes establishments earning less than 50 per cent of their incomes from the sales and service of petroleum products, the number of retail outlets would decrease about 5,000 to 35,221 for the year 1969. Table 20 treats only outlets earning 50 per cent or more of their incomes from the sale of petroleum products. Of these outlets observed, the

Cartel share was 77 per cent. Imperial Oil Ltd. (a subsidiary of Standard Oil of New Jersey) led the way with over 7,000 outlets, followed closely by Shell, Texaco and Gulf in that order.

Of the marketers observed, Mohawk Oil Co. Ltd., Supreme Oil & Gas Ltd. and Murphy Oil Co. Ltd. had no refining capacity in Canada. However, their share of the market based upon retail outlets was only about one per cent.

Mohawk markets in the three Prairie Provinces and also in British Columbia. As far as can be ascertained, Mohawk has no interests in any production or exploration ventures in Canada.

Supreme Oil & Gas Ltd. has marketing facilities in Saskatchewan and Alberta. Although lacking refining facilities, Supreme is participating in exploration activities in Alberta and also in Saskatchewan.²²

Murphy Oil Co. Ltd. is a subsidiary of Murphy Oil Corporation in the United States. In the United States, the parent company is a fully integrated one. Murphy Oil Co. Ltd. (89 per cent owned by its United States parent) owns extensive developed and undeveloped acreage in Canada.²³

Irving Oil Co. (50 per cent owned by Standard Oil of California) markets in the four Atlantic Provinces and also in Quebec. Irving has some 3,000 outlets in this eastern

²²Walter R. Skinner, Oil & Petroleum Year Book, 1968 (London: Eden Fisher (Southen Ltd., 1968)), p. 641.

²³Ibid., p. 438.

TABLE 20

NUMBER AND OWNERSHIP OF MARKETING OUTLETS
IN CANADA, JANUARY 1, 1970

Marketer	Total Retail Outlets	Cartel Share Outlets	Independent Share Outlets
BP Oil Ltd.	1,735	1,735	. . .
Champlain Oil Products Ltd. (Wholly owned by Imperial Oil Ltd.)	573	573	. . .
Golden Eagle Co. Ltd. (Wholly owned by Ultramar Canada Ltd.)	376	. . .	376
Gulf Oil Canada Ltd.	4,845	4,845	. . .
Imperial Oil Ltd.	6,844	6,844	. . .
Irving Oil Co. (Owned jointly by Standard (California) and the Irving Interests)	3,000	1,500	1,500
Mohawk Oil Co. Ltd.	125	. . .	125
Murphy Oil Co. Ltd.	230	. . .	230
Pacific Petroleums Ltd. (Phillips Petroleum has 44.7 per cent interest)	304	. . .	304
Petrofina Canada Ltd.	1,626	. . .	1,626
Royalite Oil Co. Ltd. (Owned 98 per cent by Gulf)	1,203	1,203	. . .
Shell Canada Ltd.	6,139	6,139	. . .
Standard Oil Co. of B.C. Ltd. (100 per cent owned by Standard (California))	637	637	. . .
Sun Oil Co. Ltd.	1,100	. . .	1,100
Supertest Petroleum Corp. Ltd.	1,420	. . .	1,420
Supreme Oil & Gas Ltd.	6	. . .	6
Texaco Canada (Owned 68 per cent by Texaco Inc.)	5,000	3,400	1,600
Union Oil of Canada Ltd. (Owned 87 per cent by Union Oil Co.)	58	. . .	58
Total	35,221	26,876	8,345
Per Cent of Total	. . .	77	23

Source: National Petroleum News, The Magazine of Oil Marketing, Mid-May 1970, p. 116.

region. Although Irving does have refinery capacity in New Brunswick, it has no interests in production.

Japan

Marketing in Japan is in the hands of 15 distributing companies. Nippon Oil, Idemitsu Kosan and Kyodo Oil are the three largest marketers in terms of both the number of outlets held and the volume of sales. Together they held some 43 per cent of the total number of stations in 1966 and held almost half of the total volume of sales. Nippon is closely associated with Caltex of the United States. Other Japanese distributors closely affiliated with Cartel members are Mitsubishi Oil Co., Esso Standard, Showa Oil, General Kekiyu and Koa Oil. A more detailed analysis will be presented in Chapter VI in order to determine whether Canada can market oil here.

TABLE 21
DISTRIBUTORS IN JAPAN

	Market Share as Per Cent 1965 Sales	Outlets 1966	Outlets 1969
Nippon Oil	17.5	4,281	5,123
Idemitsu Kosan	16.6	3,394	. . .
Kyodo	10.2	2,487	. . .
Mitsubishi	8.5	1,915	2,353
Maruzen	8.4	1,908	2,218
Shell Sekiyu	7.7	2,271	2,964
Mobil Sekiyu	5.7	1,957	2,783
Esso	5.4	1,716	2,100
Showa Oil	5.0	949	. . .
General Sekiyu	4.8	1,135	. . .
Daikyo Oil	4.7	1,212	. . .
Nippon Gyomo Sengu	2.0)		. . .
)		
Koa Oil	1.3)	485	. . .
)		
Kyushu Oil	0.6)		
)		
Nippon Seiro	0.0)		
Total	100.0	23,710	. . .

Source: National Petroleum News, 1967, 1968, 1969 and
Institute of Petroleum Review, Vol. 21, 1967, p. 235.

CHAPTER IV

THE INTERNATIONAL PRICING MECHANISM FOR CRUDE OIL

Pre-World War II Price Structure

The international petroleum companies have followed a system of pricing which, even to the present day, has had the effect of eliminating any price difference among themselves to any buyer regardless of any given destination point. The pricing mechanism has undergone many minor, as well as some major changes over the last few decades. First, let us look at the world pricing structure as it existed prior to World War II.

Up to the Second World War, world trade in oil was basically a trade in petroleum products. Very little crude oil was shipped across oceans. It was generally accepted as more economical to process oil near its source in big refineries and to ship the products. The shipping of products of higher value and less waste practically eliminated later cross-hauling of products which local refineries' markets might not be able to consume.

Originally, the only really large-scale movement of crude by sea was not international, but coast-wise. This was from the great producing region bounding the United States

Gulf to the market-oriented refining centres of the north-eastern United States. In 1939, approximately 75 per cent of the crude oil produced outside of North America and the non-communist world was refined in or very near to the countries producing it.¹

It was not until after the Second World War that there was any discernible movement toward establishing refineries in consuming areas. Between 1947 and 1951 refining capacity in Western Europe nearly tripled, and by 1951, Japanese refining capacity exceeded its pre-war level.²

This change in refinery location greatly altered the trade structure. The amount of crude entering into international trade grew rapidly and the relative importance of trade in products declined. In consequence, the price of crude oil began to take on more significance from the point-of-view of both exporting and importing countries.

The pricing mechanism which has evolved over the years can be traced back to the fact that the United States was originally the main producer and also to the fact that the United States was the first country to develop its petroleum industry to the point of an export capability. Prices everywhere tended to equal F.O.B. (free-on-board) prices from the United States, plus transportation costs. This was true the world over before World War II except for a few minor exceptions,

¹Edith T. Penrose, The Large International Firm in Developing Countries--The International Petroleum Industry (London: George Allen and Unwin Ltd., 1968), p. 183.

²Ibid., p. 131.

depending upon the price elasticity of demand in different markets and the various degrees of competition of different companies in various markets.

One notable exception to the "United States Gulf Plus" formula before the Second World War was the establishment of a base price, F.O.B. Constantza, Rumania. During the early thirties, Rumania and Russia were the only two countries which had a surplus of crude produced by a relatively large number of local producers and only partly controlled by the majors.³ However, Rumanian exports were never more than a minor fraction of the world's total and were of magnitude sufficient to affect only nearby markets. Moreover, even the Constantza quotations were in fact not wholly independent of the prices posted in the United States. In general they usually followed price movements at the United States Gulf.⁴

This "Gulf Plus" price structure which has evolved is a basing-point system.

A basing-point system is, in essence, a system in which all sellers, no matter where located, calculate delivered prices by taking generally accepted F.O.B. (free-on-board) prices at one or more specified locations (basing points) and adding standardized freight charges (not actual freight payments) from the 'basing point' to the place to which the commodity is shipped, regardless of the actual origin of the commodity.⁵

³The International Petroleum Cartel, op. cit., p. 354.

⁴Walter J. Levy, The Past, Present and Likely Future Price Structure for the International Oil Trade. (Holland: E.J. Brill, 1951), p. 7.

⁵Penrose, op. cit., p. 180.

Under the basing-point pricing system, all sellers who are located nearest to the buyer from the basing-point reap the advantages of "phantom freight", that is, the difference between the actual freight charges to the buyer and the freight charges from the designated basing-point. Similarly, those sellers who are located furthest from the purchaser must absorb freight--that is, absorb the differences between the actual freight charges to the buyers and the freight charges from the basing-point.

As was previously stated, the base-point has generally been the United States Gulf. The petroleum industry is particularly well suited to the use of the basing-point system. Both crude oil and refined products of different qualities can readily be reduced to standardized commodities. Furthermore, the international companies all produce and sell in several areas of the world and the small number of such companies makes it easy to maintain such a system once it is established.

Why was the United States Gulf chosen as the base-point? Three basic conditions have contributed to the selection of this choice.

1. The U.S. oil industry was by far the largest in the world;
2. U.S. oil exports from the Gulf Coast covered a large part of the world's demand, with other Western Hemisphere and Middle East supplies still in the process of rapid expansion and development.
3. The U.S. Gulf was practically the only place

where importers could obtain supplies and spot cargoes on the open market to cover any likely requirements.⁶

In general, the foregoing factors so synchronized the operations of the Gulf-Plus system that equalized delivered prices were established for every major consuming area in the world. Pricing was irrespective of the source of supply.

"This basing-point system not only linked all Western Hemisphere crude and refined product prices, but also those in Europe and the Middle East, directly to the Texas-Gulf price structure."⁷

The use of this single basing-point pricing system persisted until 1939 with but few minor changes. Although the bulk of Western Hemisphere export trade gradually broadened from the United States Gulf to include other areas--principally Venezuela, this did not have any substantial effect on the pricing structure.

During the latter 1930's the trade pattern began to shift away from the United States Gulf and the vast market of North-Eastern United States. This was primarily due to the discovery of oil reserves in the Caribbean, most notably in Venezuela. In 1939 Venezuelan production was approximately 600,000 barrels per day. Imports from all sources for the same year for the United States totalled 60,000 barrels.⁸

⁶Levy, op. cit., p. 6.

⁷The International Petroleum Cartel, op. cit., p. 353.

⁸Edward H. Shaffer. The Oil Import Program of the United States. (New York: Frederick A. Praeger, 1968), p. 111.

Admittedly, at this time Venezuelan production was only about one-sixth of the United States production capacity, which totalled 3,466,000 barrels per day.

Wells in the Venezuelan region had a much higher output capacity and hence lower incremental costs of production than in the United States. Again, however, this factor had very little, if any, effect on the basing-point pricing structure which existed at this time. Most of the exporting was confined to the big integrated petroleum companies and thus there was an absence of prices as determined by normal "arm's length" trading. As can be seen by reviewing Table 2, the dominant position of the 'Cartel Group' was at its height during this time.

Besides lower production costs, Caribbean export crude terminals, as well as refineries, were somewhat nearer to the north-eastern seaboard of the United States than was the United States Gulf. The somewhat shorter distance, plus the fact that coastwise shipping around the United States had to pay United States Maritime labour rates, made Venezuelan oil all the more competitive. At this time the Maritime labour rates were excessively high. Thus, American companies with access to their own oil at cost in Venezuela began to use this alternative source of supply. Markets of Western Europe and Latin America also now were being almost entirely served by Venezuelan oil.

The F.O.B. price for Venezuelan crude to all world destinations was the United States Gulf price for crude of

similar quality, less the United States import duty of ten and one-half cents per barrel. This import duty was imposed on all crude imported into the United States in the early 1930's. Thus the "Gulf-Plus" base was left unaltered. Venezuelan crude, which was priced on the "Gulf-Plus" base--minus the import duty, left the world crude oil price structure firmly linked to the quotations of the "Gulf". During this period there was actually no temptation on behalf of the "Cartel" marketers to accept any lower price as the United States Gulf and the Caribbean were the major sources of all crude oil as well as refined products. Consequently, until the outbreak of World War II, prices were calculated as if they all came from the Caribbean area.

During the pre-1939 period, a most significant development arose. This advent of a great new production centre, the Middle East, posed a tremendous threat to the "Gulf Plus" world pricing structure.⁹ However, the word "threat" must not be taken to mean "break away from". The major international oil companies were not anxious to jeopardize the "Gulf Plus" price structure by competing amongst themselves in the Middle East. The same can be said concerning their own Caribbean supplies. Thus the impact of Middle East production on the existing pricing structure was very limited indeed.

So far as Middle East crude was concerned, Iran and Iraq at this time were the main exporters. Iranian exports

⁹The International Petroleum Cartel, op. cit., p. 355.

were made by the British Petroleum Company (then Anglo-Persian Oil Company). Iraqi exports were made by the Iraq Petroleum Co., Ltd. Participants in this concession were the British Petroleum Co. Ltd., Royal Dutch Shell Group, Compagnie Francaise des Petroles and the Near-East Development Corporation. Each held a 23.75 per cent interest, the remaining 5 per cent being held by C.S. Gulbenkian. Most of the exports went to refineries in Europe, to those companies affiliated with the producing interests. These exports were priced in such a manner as to make their laid-down cost to refiners the same as if they came from Western Hemisphere sources.¹⁰

War and Post-Wartime Price Changes

Just prior to the Second World War, a number of minor modifications took place which altered the inter-nation pricing system. The first of these modifications was the establishment of a new basing-point at the Persian Gulf for bunker fuel oil. This "break-away" was actually initiated by the British Army.¹¹ This first full-scale break with the "Gulf Plus" pricing system was set off when the British Auditor General questioned both the production and transportation costs of Middle East oil. With the outbreak of the war, the closure of the Suez Channel stopped

¹⁰ Charles Issauri and Mohammed Yeganeh, The Economics of Middle Eastern Oil (London: Faber and Faber, 1967), p. 177.

¹¹ For a more thorough analysis, see The International Petroleum Cartel, op. cit., pp. 355-357.

Middle East oil from flowing to its principal outlet--namely Western Europe. This had two important effects. Under the single basing-point system, the net return on shipments to Western Europe from the Middle East was generally below the United States Gulf price. This lower return was simply due to the extra hauling distance from the Middle East to Western Europe in comparison with the distance from the Gulf to Europe. This lower return off-set to some degree the higher realizations on sales in the East of Suez area. Now, with the westward flow to Europe cut off, Middle East oil was being sold where the net return was highest. Now shipments of Middle East oil to nearby Eastern Hemisphere markets which involved large elements of phantom freight were substantially increased. This shift in the geographic distribution of most Middle East oil, and the fact that the prices paid for that oil still included substantial payments for phantom freight led the British authorities to question the entire pricing structure.

British authorities also tried to get actual production costs from the various companies involved. Despite their intuition that costs were much lower in the Middle East as compared to the United States, they were unsuccessful in getting any precise data.

The outcome of this British action was the establishment of a second basing-point at the Persian Gulf. After the lengthy but fruitless talks concerning production costs, the British authorities agreed to accept as the Persian Gulf base

price that of the United States Gulf price. However, the acceptance of the second basing-point did eliminate much of the phantom freight charges involved. Now freight charges were calculated from either the Persian or United States Gulf, whichever was the closest, and therefore cheapest for the buyer concerned. The establishment of the second basing-point thus did not eliminate the basing-point system. It simply meant that now there were two such points and the matter of selection was simply one of choosing the one closest to the buyer involved. In 1945, this second base-point was also extended to cover all refined products and crude oil.

"This change permitted each supplier to sell his oil in all areas east of the Suez and also west of Suez--as far as Italy, at the same net realization."¹² This meant that now Middle East crude producers could deliver crude as far west as Italy and still remain competitive with crudes from the United States, at prevailing freight rates.

It soon became evident that this revised pricing structure was to become unsatisfactory. Two significant developments arose after 1946 which tended to put great strains upon the two-point pricing system. The first was the great expansion of Middle-East output. Middle East crude output increased from 4.8 per cent of total world crude

¹² Helmut J. Frank, Crude Oil Prices in the Middle East - A Study in Oligopolistic Price Behaviour (New York: Frederick A. Praeger, 1966), p. 27.

production in 1940 to 12.2 per cent by 1948.¹³ The second factor was the rapid series of crude price increases in the United States.

There were three advances in 1946, totalling 45 cents a barrel, and three more the next year, totalling 95 cents a barrel. In addition, pipeline charges and other costs rose, so that the delivered price of Texas sour crude at Gulf of Mexico ports reached \$2.75 per barrel by December, 1947 compared with \$1.05 at the end of the war.¹⁴

Price changes in the United States were generally followed in the Middle East, though often with a time lag. It is also to be noted that at no time did Middle East price changes precede those of the United States nor did they exceed them in amount. By 1948, Persian Gulf crude prices rose \$1.17 per barrel over their 1944 level.¹⁵ By early 1948, Persian Gulf crude oil prices were \$0.53 below the Gulf of Mexico quotation.¹⁶ This price differential permitted Middle East crudes to be competitive with those from the United States as far west as Northern Europe. Eventually, by 1950, the point of price equalization moved to the Eastern Seaboard of the United States.

From 1950-51 the conditions which profusely affected the pricing structure differed greatly from those which existed at this time. The market now turned from a strong

¹³The International Petroleum Cartel, op. cit., p. 361.

¹⁴Frank, op. cit., p. 29.

¹⁵Ibid., p. 30.

¹⁶Ibid.

sellers' market to a strong buyers' market.

Between 1953 and 1957, the pricing policies of the "Cartel" group had to be formulated in the light of opposing forces. During this time many factors were present which tended to lower prices. Demand increases were levelling off, while at the same time reserves and producing facilities were expanding rapidly. A further deterrent to higher prices was the surplus of tankers as well as the growth of the ever-bigger super tankers. Two main factors were present to oppose any price reductions which might rationally follow from the factors mentioned above. For maximum profits it was definitely in the best interests of the "Cartel" group to oppose price reductions. Government interests were also involved. If prices were lowered, government tax revenues would more than likely decrease and existing profit-sharing arrangements, especially in the Middle East and Venezuela where a 50-50 profit-sharing agreement was in effect, all tended to oppose or limit price reductions.

"In the face of these conflicting pressures, the producing companies attempted to maintain the link between posted crude oil prices in the Middle East and the Western Hemisphere by means of the United States "net back" formula, first established in 1949."¹⁷ By "net back" the following is meant:--to the posted price at the well-head in Texas is added various charges such as gathering, pipeline, evaporation allowance, terminal loading--plus any marketing charges.

¹⁷Ibid., p. 90.

This gives the F.O.B. price at the Texas Gulf. To this is added the freight charges to the point of destination-- which gave the destination or landed price. The F.O.B. Middle East price was then calculated from this landed or C.I.F. price. It was arrived at by merely subtracting freight costs from a Middle Eastern port. For an example, see Table 22. It is to be noted that every price increase in the United States, as well as any tanker rate increase, must be matched by a similar increase in the posted price of Middle East oil. This was done with the full understanding that the Middle East was definitely a much lower-cost producing area.

Immediately after the Suez crisis of 1957, which temporarily reduced excess supply, Middle East crude prices were still closely linked to those of the United States. However, with the Suez Channel reopening, and also with the continued depression of transportation costs simply due to the building of super tankers, the ties between the East and West were gradually weakening. These ties became almost completely severed with the imposition of import restrictions by the United States in 1959. Today, actual crude prices are determined by a combination of market forces and competitive activities of the various suppliers--namely the "Cartel" group. This, however, is not the case of posted prices which still reflect strong ties between the Eastern and Western Hemispheres. They are now merely nominal prices and are no longer representative of market or competitive transactions.

TABLE 22

IRANIAN CRUDE PRICE FORMULA (\$2.22)
(Per Barrel Prices for 36° API)

Items in Price	Cumulative Totals
1. Posted well-head price West Texas Sour Crude.	\$2.44
2. Charges to U.S. Gulf Port (ICC rates for gathering, pipeline, evaporation allowance, and terminal loading, plus one cent marketing charge) \$0.31	\$2.75 F.O.B. U.S. Gulf price for West Texas Sour Crude
3. USMC freight, U.S. Gulf to Southampton, U.K. \$1.02	\$3.77 Delivered U.K. price
4. USMC freight, Abadom, Iran to Southampton, U.K. \$1.55	\$2.22 F.O.B. Abadan price for Iranian crude

Source: Helmut J. Frank, Crude Oil Prices in the Middle East - A Study in Ologopolistic Price Behaviour (New York: Frederick A. Praeger, 1966), p. 32.

CHAPTER V

THE THREE PRIME PRICE MOVERS

This chapter is divided into three separate but inter-related divisions. The three "Price Movers" or "Price Stabilizers", whichever the case may be, are as follows:

(1) The Russian Impact, (2) The Organization of Petroleum Exporting Countries and (3) The United States Government Policy.

The Russian Impact

The Soviet oil trust can actually be classified as a newcomer to the international oil scene despite the fact that it had developed fields less than twenty years after the sinking of Drake's Well in 1859. The oil fields of Baku in the Caucasus were developed long before either those of the Middle East or Latin America. "For a short while in the early years of the century, the Russians actually produced more than the United States, but this was a temporary phenomenon and with the opening up of the American southwest it lost the lead."¹ By the outbreak of the Second World War, the Russians had almost completely withdrawn from the international scene. This can be mainly attributed to Stalin's

¹Christopher Tugendhat, Oil--The Biggest Business (New York: G.P. Putnam's Sons, 1968), p. 244.

industrialization programme and also the fact that domestic oil consumption was increasing rapidly.²

Since 1955 the Russians have staged a dramatic recovery to recapture their traditional share of 19 per cent of the world trade that they had in 1930-33.³ Russian total output shot up from 38 million tons to about 148 million tons between 1950 and 1960.⁴ Approximately 75 per cent came from the Ural Volga Basin and the Baku regions. Between 1955 and 1961 Soviet oil exports increased dramatically from 8 million tons to 40 million tons, or over 30 per cent per year.

During this period, 1955-61, the Soviets found oil markets in a number of countries. These included not only Eastern Europe but also Italy, West Germany, Sweden, Japan, France, Austria, Greece, Egypt, Cuba and Brazil. The critical question of whether the Russians deliberately tried to depress world oil prices or if they were forced to lower prices to secure markets is difficult to answer. The Russians have not generally competed with the oil firms on a price basis. They have rather negotiated individual contracts with refiners, distributors and/or consumers. Soviet exports are not usually on a cash-sale basis but rather are within a frame-work of barter. "Their sole aim is to organize a barter deal on a

²Ibid., p. 244.

³M.A. Adelman, "The World Oil Outlook", in Natural Resources and International Development, ed. by Marion Clawson (Baltimore: The Johns Hopkins Press, 1964), p. 92.

⁴Tugendhat, op. cit., p. 245.

government-to-government basis under which the importing nation receives oil in exchange for items which the Soviet Union happens to need. . . ."⁵ The large international companies argue strongly against these "swap arrangement" as it means that the Russians, by doing so, eliminate any market entry costs. Such costs are understood to be those associated with the setting up of distribution channels within the country involved.

Again, as is the case with the independent oil companies, it is very easy to over-estimate the price effects of Russian oil exports. "In 1966 it (Russian) supplied about four per cent of the non-Communist world's needs and even in Western Europe, where West Germany and Sweden, as well as Italy, are large importers the proportion was only about eight per cent."⁶ In 1967, however, Russian oil exports made further inroads into what were previously American markets. If one takes into account Cuban, African and Japanese markets, Russia now supplies approximately seven per cent of Western demand.⁷ These small percentage figures just quoted can be quite misleading. In the oil market it is the marginal quantities which have the most effect on prices. Even if the new cheaper supply feeds only a fraction of the total, companies

⁵ Ibid., p. 248.

⁶ Ibid., p. 249.

⁷ "The Communist Oil Conundrum," The Economist, January 7, 1967, p. 46.

are very likely to cut prices to maintain their market share.

The exact terms of the "barter deals" are very difficult to come by. Some idea of the various bargaining arrangements can be seen from the following.⁸ Japan, Italy and West Germany have obtained their oil at 7 or 8 rubles per ton. In contrast, Czechoslovakia has been quote as paying 18 rubles per ton; East Germany 15.3; Poland 17; Hungary 20 and Bulgaria 16 rubles. This was a time when the world average was 12.7 rubles per ton.⁹ It must be noted however that these sales to West Germany, Italy and Japan when expressed as a per cent of total imports are very small. Soviet Bloc exports to West Germany amounted to about 5 per cent; to Italy about 11 per cent; and to Japan less than 1 per cent during 1968. During 1969 Soviet exports to those three particular countries declined appreciably. This was especially true in the case of Italy where Soviet exports accounted for approximately 8 per cent. Expressed in metric tons, this meant a decrease of 1,540, while crude oil imports increased by 10.2 per cent over the 1968 level. A large portion of the increase of Italian imports came from Africa as well as the Middle East.¹⁰

Needless to say, this price discrimination policy made

⁸ Ibid., p. 46.

⁹ Since 1961 the official rate of exchange was 0.9 = \$1.00 U.S. This would make the world average price in 1967 equal \$11.43 per ton.

¹⁰ These figures are to be found in various issues of Petroleum Press Service, but mainly in the April, 1970 edition.

the East Europeans furious. The Russians have argued in defence that the Comecon Countries do not have to find a hard currency to pay for their oil. Also, they further argue that the price they, the Russians, get in supplying raw material is good in view of the price they have to pay for the quantity, as well as quality, of the finished goods they obtain in return.¹¹

Much is made of the wide discrepancy between prices to members of the Soviet Bloc and prices to buyers outside. Within the Soviet Bloc, prices are always part of a bilateral trade deal. As an outsider, it would not be fair to say whether these prices were just or not. M.A. Adelman states that the notion of high intra-Soviet Bloc prices subsidizing non-Soviet buyers is unfounded.¹² "The sales to non-bloc buyers are well worth making because they are well above costs. . . ."¹³ Adelman estimated that production costs for the Soviet Union averaged about \$0.68 per barrel. Prices to non-Soviet nations for 1960 are depicted by Table 23. The equivalent Persian Gulf or Caribbean price is the price at which crude from these sources would have to be sold in order to be competitive with Russian crude oil and not the posted price at these sources. As can be readily seen from Table 23, the Russians did not charge a uniform price to all buyers. This

¹¹The Communist Oil Conandrum," op. cit., p. 46.

¹²Adelman, op. cit., p. 94.

¹³Ibid.

TABLE 23

RUSSIAN PETROLEUM EXPORT PRICES (1960)

Free World Nations	Approx. bbl. daily	F.O.B. Price (\$/bbl)	Equivalent Persian Gulf or Caribbean price
Brazil	33,700	\$1.73	\$1.86
Cuba	33,000	1.54	2.01
Egypt	14,000	1.63	1.37
Finland	15,300	1.72	1.49
France	2,700	1.60	1.27
West Germany	24,800	1.38	1.05
Greece	8,500	1.79	1.46
Italy	78,400	1.42	1.10
Japan	24,800	1.34	1.70
Morocco	900	1.83	1.50
Yugoslvia	7,000	2.27	1.95

Average price to Free World \$1.57

Communist Nations

China	12,720	2.92
Czechoslovakia	36,390	3.14
East Germany	31,640	2.69
Hungary	24,090	3.05
Mongolia	540	3.50
Poland	13,660	3.28

Average price to Communist Nations \$3.03

Source: Oil & Gas Journal, December 11, 1961, p. 64.

price discrimination appears to have been based either on political grounds or barter arrangements. Volume did not appear to be a decisive factor as can be seen from the fact that Cuba paid a higher price per barrel than did West Germany, though Cuba purchased more per day than did the latter.

M.A. Adelman believes that these prices (F.O.B. the Black Sea) are inconsistent with the notion that Russia was using her oil resources for political reasons.¹⁴ Russian price increases in 1961 and also her loss of contracts appear to support this view.

Soviet Bloc exports decreased 7 per cent from a high of 1,008,000 in 1968 to 939,000 barrels per day in 1969.¹⁵ As usual, the West European market absorbed the majority of the Russian exports. Italy, Finland, West Germany, Sweden and France accounted for approximately 70 per cent. Crude oil imports into the Soviet Bloc more than trebled over 1968 figures. Recent figures indicate Soviet Bloc crude oil imports for 1968 to be over 50 thousand barrels daily. All crude was purchased from state oil entities except for Libyan deliveries which accounted for some 17 per cent of total imports.

Just what part is the Soviet oil expected to play in the seventies? Up to now the Russians have been able to sell rising quantities of crude on the markets of the free world.

¹⁴Ibid., p. 96.

¹⁵Petroleum Press Service, May 1970, p. 165.

This is expected to change within the next decade. However, this change from surplus to deficit will certainly not come overnight. "For the time being, the Soviet Bloc is likely to maintain its deliveries to the free world at a rate of around 50 million tons annually. . . ." ¹⁶

Already the pending changes in the supply position have had an influence on the Communists' economic, commercial and political strategy. Recent deals with Iraq are the clearest sign so far that the Russians are seeking supplementary oil supplies from Middle East sources. Also, although they are committed to supplying most of the East Europe's growing oil demands, they are now also encouraging their satellites to make their own arrangements for purchases from sources such as Iran. ¹⁷

Long term production plans reveal crude oil production for the Soviet Bloc to be between 600 and 620 million tons in 1980. ¹⁸ This target presupposes a production rise of about 85 per cent over the next decade and this must be regarded as very ambitious. Consumption is expected to be in the order of some 675 million tons, leaving a deficit of about 70 million tons of crude per year. ¹⁹ This supply gap will be correspondingly bigger if the USSR should seek to maintain its position as a substantial exporter to non-Communist markets. Admittedly

¹⁶ Petroleum Press Service, January 1970, p. 3.

¹⁷ Ibid.

¹⁸ Ibid., p. 4.

¹⁹ Ibid., p. 5.

the above supply and demand figures are all highly tentative and they should not be regarded as firm forecasts. However, these figures do give rough approximations to Russia's position, which in the light of these signposts is not all that favourable.

The Organization of Petroleum Exporting Countries

The Organization of Petroleum Exporting Countries was founded in 1960. One of its prime objectives is its concern over the maintenance and stabilization of crude oil prices. Its present members consist of the main exporting countries, namely Venezuela, Kuwait, Saudi Arabia, Iran, Iraq, Indonesia, Libya and Qatar.

The importance of the OPEC countries as suppliers of petroleum has constantly increased. Of the 1965 world production of 30.1 million barrels per day, OPEC members supplied 44 per cent of the total or 13.2 million barrels per day.²⁰ This represented an increase of 4 per cent over 1960 when the OPEC supplied 40 per cent of the world needs. When one looks at OPEC's share of the total volume of crude petroleum and products traded internationally its dominance is emphasized to a greater degree. OPEC's share of the average 14.5 million barrels per day of both crude petroleum and products traded internationally was about 87 per cent.²¹

²⁰A.R. Martinez, Our Gift, Our Oil (Vienna, N.V. Drukkerij, D. Riedel Dordrecht, 1966), p. 109.

²¹Ibid., p. 110.

It is true that "the spark" which ignited the formation of OPEC was the round of posted price reductions of Middle East crudes in late 1959. However, the idea really originated with Venezuela a decade earlier. In 1949 the Vice-President of the Chase Manhattan National Bank published a paper on Venezuelan oil pointing out that oil from Venezuela was priced far above that of Middle East crudes. As a result, he suggested that the "50-50" profit-sharing arrangements be abolished, that new oil concessions be granted, that no attempt be made to increase the volume of Venezuelan oil to be refined within the country and that no additional social or economic benefits should accrue to the industries' employees.²²

Needless to say, this somewhat vexed the government of Venezuela. It resulted in an official visit to the principal exporting countries and eventually the formation of OPEC. It was the first time in history that the principal oil exporters discussed and exchanged views on mutual problems. Thus the Venezuelan crises actually laid the groundwork.

It must be admitted however that little, if any, concentrated effort was taken for closer co-ordination of policies until a decade later. It was not until 1959, when the major oil companies reduced their posted prices in the Middle East, that the "spark" finally was ignited. This posted price slashing led to a congress being held in Cairo in early 1959.

²²Ibid., p. 110.

It was here that the delegates found a common cause which was beneficial to all concerned.

Since this Cairo Congress of early 1959, various other meetings have been held. In each such meeting the idea of adopting a common policy in order to stabilize both the oil markets and prices became more predominant. On August 9th, 1960 a new round of posted price cuts was begun. Price cuts of the various oil companies ranged from \$0.04 to \$0.14 per barrel.

At the end, posted prices became uniformly depressed. For instance, Kuwait crude came down from \$1.67 per barrel to \$1.59 and Arabian crude from \$1.94 to \$1.84 per barrel. At the lower levels these oils were posted at prices \$0.96 and \$0.71 lower than Venezuela Oficina crude, respectively. Iranian oil was listed at \$0.77 per barrel lower than Oficina and \$1.12 lower than West Texas crude.²³

These reduced post prices were "the straw that broke the camel's back." The Iraq government invited top officials from Iran, Kuwait, Saudi Arabia and Venezuela to a Congress in Baghdad. From this meeting came OPEC. Its official ratification came on September 14, 1960. Among other things OPEC resolved:

1. That members can no longer remain indifferent to the attitude heretofore adopted by the oil companies in effecting price modifications,
2. That members shall demand that oil companies maintain their prices steady and free from all unnecessary fluctuations; that members shall endeavour, by all means available to them, to restore present prices to the levels prevailing before the reductions, and .

²³Ibid., p. 112.

3. That members shall study and formulate a system to ensure the stabilization of prices by, among other means, the regulation of production. . . .²⁴

Just why are the member countries of OPEC so determined to keep the posted pricing system? Or to ask the same question in a different way, why are the oil companies who introduced posted prices so anxious to reduce them?

When posted prices were first introduced they had a real meaning. They represented the actual selling price received by the oil company involved. However, as we have seen, nothing can be further from the truth today. Actual selling prices (realized prices) have little, if any, relationship to posted prices due to the use of discounting. OPEC's interest in the maintenance of this somewhat obsolete pricing system is quite obvious. Government's revenues from oil are based on posted prices--not realized prices. Since the "gap" between posted and realized prices is constantly widening, this means a lot in terms of revenue to OPEC's members.

If one considers that the production of Middle East countries was 1,860 million barrels during 1960, the actual reduction in posted prices meant an annual loss in revenue of \$93.0 million. Since the level of production had increased by 30 per cent to the year 1963 . . . , the cumulative loss or revenue to the Middle East countries during the four-year period in question is more than \$350.0 million.²⁵

²⁴Frank, op. cit., p. 175.

²⁵Martinez, op. cit., p. 113.

Perhaps an example would help to clarify the reasons as to why OPEC is so concerned about keeping posted prices high. Let us assume that originally the posted price was, say, \$1.80 per barrel and that the government tax rate was 50 per cent on net profits. If costs per barrel equalled \$0.20 then the governments share would be \$0.80 per barrel ($\$1.80 - \$0.20 = \1.60 times 0.50). Now if the posted price was reduced to say \$1.50 with costs constant the government share would decrease by \$0.15 to \$0.65 per barrel ($\$1.50 - \$0.20 = \$1.30$ times 0.50).

Oil companies would be very happy to see posted prices reduced. The truth of the matter is that oil companies gain when posted prices are reduced relative to realized prices. This is simply due to the fact that government revenues are calculated on posted prices and not on realized prices. Perhaps an example would help to clarify this problem. Assume originally that the posted price per barrel is \$1.80 with a tax rate of 50 per cent and costs \$0.20. As we have seen before, this would make revenues going to the government equal to \$0.80. If the realized price is not equal to the posted price of \$1.80 but say \$1.50 then the total revenue per barrel to the Company would be \$0.50 ($\$1.50 - \$0.20 - \0.80). Now if the posted price was reduced to \$1.50 we have seen that government revenues would equal \$0.65 per barrel. This would then increase the return of the oil company by \$0.15 to \$0.65 per barrel.

OPEC has been successful in maintaining its goal of price stabilization. Table 24 points out that prices per barrel of

TABLE 24

PRICE PER BARREL OF PETROLEUM POSTED BY MAJOR EXPORTING COUNTRIES
(Year End Prices)

Years	Iran ^a Light, ex Kharg Is. 34.0°-34.9°	Iraq Basrah, ex Fao 35.0°-35.9°	Kuwait ex Mena al Ahmadi 31.0°-31.9°	Libya Brega ex Marsa el Brega 39.0°-39.9°	Saudi Arabia ^b ex Ras Tanura 34.0°-34.9°	Venezuela f.o.b. Puerto La Cruz 35.0°-35.9°
1950	\$	\$	\$	\$	\$1.75	\$2.57
1951	.	1.67	.	.	1.75	2.57
1952	.	1.67	.	.	1.75	2.57
1953	.	1.92	1.72	.	1.97	2.80
1954	1.91	1.92	1.72	.	1.97	2.80
1955	1.91	1.92	1.72	.	1.97	2.80
1956	1.91	1.87	1.72	.	1.97	2.80
1957	2.04	1.98	1.85	.	2.08	3.05
1958	2.04	1.98	1.85	.	2.08	3.05
1959	1.86	1.80	1.67	.	1.90	3.05
1960	1.78	1.72	1.59	.	1.80	2.80
1961	1.78	1.72	1.59	2.21	1.80	2.80
1962	1.78	1.72	1.59	2.21	1.80	2.80
1963	1.78	1.72	1.59	2.21	1.80	2.80
1964	1.78	1.72	1.59	2.21	1.80	2.80
1965	1.78	1.72	1.59	2.21	1.80	2.80

---continued---

TABLE 24 - Continued

	<u>Iran^a</u>	<u>Iraq</u>	<u>Kuwait</u>	<u>Libya</u> Brega	<u>Saudi Arabia^b</u>	<u>Venezuela</u>
	Light, ex Kharg Is. 34.0°-34.9°	Basrah, ex Fao 35.0°-35.9°	ex Mena al Ahmadi 31.0°-31.9°	ex Marsa el Brega 39.0°-39.9°	ex Ras Tanura 34.0°-34.9°	f.o.b. Puerto La Cruz 35.0°-35.9°
Year						
1966	\$1.79	\$1.72	\$1.59	\$2.21	\$1.80	\$2.80
1967	1.79	1.72	1.59	2.21	1.80	2.80
1968	1.79	1.72	1.59	2.21	1.80	2.80

Source: Petroleum Press Service, Petroleum Times, U.S. Bureau of Mines, various issues.

^aPrior to 1966 port of export was Bandan Mashur.

^bA.P.I. gravity for crude is 36.0°-36.9° from 1950-1956.

petroleum posted by the major exporting countries have remained constant, with but one exception since 1960. This one exception is Iran, where the posted price actually increased.

Member countries of OPEC will more than likely continue to apply pressure for the continuance of high posted prices in the foreseeable future. Table 25 illustrates their extreme dependence on world markets.

Thus, with such a high degree of dependence on exports, OPEC countries will view with great alarm any deterioration in the price of their exports. They argue in defence of their high price maintenance policy by pointing out the worsening of their terms of trade (price exports divided by price imports). Their argument is quite justified in the light of the increasing cost and volume of their imports.

TABLE 25

PETROLEUM EXPORTS FOR SELECTED COUNTRIES, 1960
(In 1,000,000 Barrels)

Country	Production	Exports	Per Cent Exports
Saudi Arabia	456.5	453.2	99
Kuwait	594.3	582.3	98
Qatar	63.9	62.4	98
Iraq	354.6	337.7	96
Venezuela	1,941.7	950.4	91
Iran	390.8	339.7	87
Indonesia	150.5	119.2	79
Non-OPEC Countries			
Soviet Bloc	1,222.4	146.4	12
Columbia	55.8	62.4	98
Algeria	67.2	63.4	94

Source: A.R. Martinez, Our Gift, Our Oil (Vienna, N.V. Drukkerij; D. Reidel-Dordrecht, 1966), p. 107.

The United States Government Policy

The United States remains the foundation for the prosperity of the entire international oil industry. During 1968 the United States produced over nine million, refined over 11 million and consumed an estimated 13 million barrels per day of crude oil. These figures represent over a fifth of the world's total production, more than a quarter of its refining, and about 35 per cent of its consumption.²⁶

The role played by the United States is often said to be like the one it used to play in international affairs between the two World Wars. The United States, in theory at least, is a strong advocate of international trade and free competition yet has refused to enact legislation which would make it possible for it to carry out these admirable but somewhat idealistic goals.

Although numerous cases of monopolistic actions have been brought up by the Courts to limit the powers of the major petroleum companies, fiscal policies have been enacted to work in the opposite direction. Both government fiscal (taxation) policies and import restrictions have served to maintain a high price structure both domestically and internationally. The manner in which they do this will be explained in the following paragraphs.

²⁶ All these figures are calculated from World Petroleum Report, An Annual Review of International Oil Operations (New York: Mona Palmer Publishing Co., Inc., 1969), pp. 27-29.

Despite the fact that a complete review of the American taxation policies will not be pursued here, it is hoped that the following brief explanation will be enough to point out their effect on the maintenance of high prices. It is widely acknowledged that the high percentage depletion allowances, 22 per cent in the United States on gross income and 33.3 per cent in Canada on net income along with quick write-off of exploration, drilling and development costs, have tended to aggravate and prolong production both at home and abroad. This perhaps is quite true but a closer look at the situation will help to explain just why this excess capacity has not resulted in lower prices both domestically and abroad. By allowing such write-off's as mentioned above, the oil companies' profits are greatly understated. For example, how many other industries are allowed to deduct 22 per cent of operating profits when calculating their taxable income? To be sure, the median return on invested capital in the petroleum industry would be much higher than the 11.8 per cent reported for 1968 if such write-off's were eliminated.²⁷

In addition, under the income tax law of the United States, domestic corporations operating abroad are subject to the United States income tax laws. So, regardless of its geographical source, the entire income may be subject to taxation in the United States, while at the same time being taxed in the countries in which it originates. Consequently

²⁷"Ranking the Top 25 Marketing Companies", National Petroleum News, The Magazine of Oil Marketing, Mid-May, 1970, p. 28.

the problem of double taxation arises. To offset this problem, American Companies are allowed to deduct or use as a full tax credit any taxes paid to foreign governments from their total calculated taxes payable in the United States. For example, assume the foreign source income before foreign tax is \$100 and the foreign tax paid is \$30. If the American tax rate is 50 per cent this means that total foreign income times the tax rate ($\$100 \times 0.50$) less foreign tax credit of \$30, i.e. \$20 is paid in taxes to the American government. This brings the total tax payments to \$50. At first blush, this would appear as an incentive to increase production abroad and consequently have the effect of increasing supply and hence decreasing prices. However, this is not the case. The Organization of Petroleum Exporting Countries (OPEC) upon seeing that the foreign producer was able to use foreign taxes paid as a credit against domestic taxation rates insisted that the oil companies were not paying their share of taxes and that earnings were necessarily higher. As a consequence, they (OPEC) insisted that any foreign firm must pay royalties based upon posted prices and not realized or actual prices. It felt this to be an effective measure to offset the tax relief provided by the American government.

The American oil policies, namely those of prorationing and import restrictions, have had even a more profound affect on both the domestic and international pricing structure. The United States has protected its own petroleum industry by means of a rigid system of import restrictions coupled with internal

production controls and price supports. How do these protective policies affect the pricing structure in view of the fact that American companies own a larger proportion of the world's reserves than anyone else?

Dating back to the early 1930's, the United States has followed a production pro-rating policy. In the late 1920's and early 1930's the petroleum industry was hit hard by both the depression and new reserve findings. It was obvious that the only policy to protect price levels was to impose production controls. This job could only be done by the State governments, and soon regulatory bodies were set up within each State to control production.

Very briefly, this protectionist program works as follows. Once a month estimates are submitted to State commissions by the major oil companies as to the amount of oil they wish to buy. The most important of these State Commissions is the Texas Railroad Commission. It is on the estimates from the oil companies that each commission decides how much should be produced and also where and by whom the oil should be produced. This pro-rating system has a definite effect on both the domestic and international price levels. First, let us examine its effect on the domestic scene. As was previously stated, each commission allocates production.

A certain proportion of the total has to be allocated to the so-called 'stripper' wells, that is wells which . . . cannot yield more than 20 barrels a day. More will come from the East Texas field . . . and from newly-discovered fields, which are given a privileged

position during their first two years. What is left is then divided between every well in the state so that each can operate for only a certain number of days per month.²⁸

This system has some basic economic defects. "One of the most notable is the special exemption granted to the high-cost stripper wells, which currently account for over 20 per cent of the nation's total production. As long as these "stripper wells" are in production the cost per barrel or ton must necessarily remain higher than otherwise. Also, the practice of granting production schedules to wells--not fields--encourages over-production and waste. Oil is usually found in fields of substantial size. Therefore, companies can simply drill another well in the same field to evade the pro-rating rules or restrictions.

Secondly, the pro-rating system has a definite impact on world oil prices. It has allowed low-cost Middle East crude to be imported at a net back price. Once low-cost transportation had developed, Middle East producers found these arrangement to be quite profitable. Since this United States net back price was the lowest, the foreign sellers had every incentive to expand their sales to the West. The ironical part of it all is that the Middle East producers were for the most part American-owned. Thus, the international majors were able to take advantage of the low-cost Middle East crude. It must be noted that they could only do this by going along with the pro-ration policy of the American government, which

²⁸Tugendhat, op. cit., pp. 235-236.

kept prices at artificially high levels. Of course, this scheme was only possible until the United States government place a mandatory import restriction on the petroleum industry in 1959.

The basis of the entire import policy is national security. In many cases this does not follow economic logic whatsoever. The United States, like other countries everywhere, does not want to become totally dependent upon foreign resources--especially oil. It is extremely dangerous to run short of such a strategic commodity during wartime. Even in relatively peaceful times it has proven dangerous to rely completely on imports, as the 1967 Arab embargo on sales to both Britain and the United States has proven.²⁹

The formula for the calculation of petroleum imports is somewhat complicated and will not be examined in detail here. For the controlling of petroleum imports the United States is divided into five districts, plus Puerto Rico. Districts I-IV consist of all states east of the Rocky Mountains; District V consists of all states west of the Rockies--including Alaska and Hawaii. Petroleum imports are also classified by products: crude, unfinished oils, finished products and residual fuel oils. To complicate matters still further, each district usually treats each product differently. In District V the crude-products quota is set at the difference between estimated demand for the calendar year and estimated United States and

²⁹Ibid., p. 231.

Canadian supplies produced in or shipped into District V. In 1969 the estimate for Canadian shipments was 181,000 barrels per day. In effect, District V producers receive 100 per cent protection from imports other than from Canada.

Within Districts I-IV the crude-products import quota is set at 12.2 per cent of estimated production. Estimated Canadian shipments into these districts are subtracted from the 12.2 per cent quota. Any remainder is allocated on an individual basis to those refineries which qualify for quotas.

In appraising the American import policy both costs and benefits must be approximated as precisely as possible. The costs, as well as the benefits, are difficult to measure precisely because many value judgments--notably national security--must be introduced. The Schultz Commission considers the most primary and immediate impact of eliminating import restrictions to be on prices. Profits would necessarily be reduced as competition increased. The marginal producers would be hurt the most. The Schultz Commission projected hypothetical price declines to the \$2.00 and \$2.50 level from the current level of about \$3.30. They projected that some producers would enjoy lower unit costs, but they did not expect the long-run cost reduction to match either the \$2.00 or \$2.50 price decline.³⁰

³⁰ The Oil Import Question - A Report on the Relationship of Oil Imports to the National Security by the Cabinet Task Force on Oil Import Controls (Washington, D.C.: Government Printing Office, 1970), p. 121. Hereinafter, this report is referred to as the "Schultz Commission."

In the \$2.60 case, the profit decline would reach its maximum--about \$1 billion a year . . . and would diminish thereafter as production from existing reserves is phased out; in the \$2.00 case the profit decline would be about twice as much; and in either case the loss could be deferred and partly diminished by lengthening the transition prices.³¹

However, the producer's loss would be the consumers' gain. Of course, this would only be true in areas where extra taxes would not have to be imposed to carry on or start state programs. However, from a national point-of-view a more efficient allocation of resources would be made.

The real economic costs of the import policy are basically the higher prices which the ultimate consumer must pay for products demanded and also the capital presently invested in oil which might be more efficiently allocated to other uses.

TABLE 26

CONSUMER COSTS RESULTING FROM THE UNITED STATES
IMPORT RESTRICTION PROGRAM
(Billions of Dollars Per Year)

	1969	1975	1980
Task Force	4.85	5.8 - 7.2	8.4
Interior Dept. Staff:			
I	. .	2.2	. . .
II	. .	7.13	8.15
OEP Staff	5.26	6.3	. . .
Standard Oil (N.J.):			
I	3.45	6.32	6.99
II	. .	. .	10.2

Source: Schultz Commission, op. cit., p. 26.

³¹Ibid.

Table 26 estimates the extra cost to the American Consumers as a result of the present import system. The Schultz Commission estimated that consumers paid approximately \$5 billion more for oil products than they would have paid in the absence of import restrictions. By 1980, the costs are expected to soar to over \$8 billion. However, this does not represent the true consumer cost picture. Much of the higher price paid by the consumer accrues to governments (both State and Federal), in the form of taxes paid by the Oil Companies. If present import restrictions were abandoned, Federal income tax payments by the oil industry would probably fall in the long run. This is simply due to the fact that their taxable incomes could decline given, of course, that product prices are lowered. These costs are difficult to estimate but the Federal revenues resulting from higher profit before taxes are a result of the import restriction plan must be subtracted from the extra consumer costs to obtain a more reasonable picture.

The restriction of low-cost imports, as we have seen, raises the domestic price level and thus, due to the extra profit which can be realized, draws in resources which would otherwise be used elsewhere. To the extent that this happens, oil import restrictions lead to inefficient uses of both manpower and capital.

The following table depicts the efficiency costs, assuming that import restrictions are liberalized at the present level of real prices. Higher oil prices also deprive

buyers of purchasing additional petroleum that they would have bought at lower prices. This cost factor is difficult to estimate. It is also true that additional costs to users of petroleum products as raw materials may be substantial. These costs are also difficult to ascertain but they do represent a real loss to the economy as a whole.

TABLE 27

EFFICIENCY LOSSES DUE TO EXISTING OIL IMPORT QUOTAS
(Millions of Dollars Per Year)

	1970	1975	1980
Standard Oil (N.J.)	137	389	1,554
Bureau of Mines:			
I	. . .	370	970
II	. . .	1,020	1,400
Shell Oil	1,600	. . .	. . .

Source: Schultz Commission, op. cit., p. 28.

The present restriction program also has a substantial effect on employment. An abandonment of same would consequently shift production from high-cost to lower-cost output. This could quite easily have the effect of causing a decline in employment and would also involve other related problems, such as labour immobility. The Schultz Commission has estimated that if the price of crude falls to \$2.00 per barrel then 5,000 to 15,000 workers per year, for 10 years, would be left idle; at the \$2.50 price, 5,000 to 10,000 workers annually would be without employment until the mid-1970's.³²

³²Ibid., p. 230.

CHAPTER VI

JAPAN'S OIL INDUSTRY

The purpose of this chapter is to study Japan's oil industry in an attempt to investigate Canadian marketing prospects in Japan. Intuitively, Japan appears to be one of the best outlets for Canadian oil. This is due to Canada's close proximity to Japan as well as to Japan's concern over foreign control of its industries. The Port of Vancouver, the obvious outlet for Western Canadian oil, is some 3,000 miles closer to Japan than is the latter's main supply base, the Persian Gulf. This reduction in hauling distance should mean a substantial saving in freight costs. Also, Japan's concern over the ownership of its industries should help Canadian marketers gain entry into this fast-growing Japanese market. One would think that this factor should provide the opportunity for Canada to negotiate with Japanese bargainers, and not with one or several members of the economically powerful Cartel group.

Japan must constantly concern itself with a major problem--the paucity of its natural resources. Petroleum deposits in Japan account for only 0.01 per cent of the total world proven deposits; coal deposits only 0.4 per cent. Crude oil ranked number one in value of all Japanese imports during 1968. Imports of crude oil accounted for over \$1,600 million

American with imports of coking coal totalling some \$491 million.

Since the Second World War, Japanese energy demands have grown at a tremendous pace. Energy demand, linked as it is to the rapid development of the economy as a whole, has grown at an average rate of over 10 per cent annually during the last decade.¹ Since some four-fifths of this growth has been provided by petroleum, it is quite evident that petroleum is playing an ever-increasing role in the Japanese economy. Through the years 1955-1964 the demand for petroleum has increased at an average rate of more than 24 per cent annually.²

TABLE 28

JAPAN'S SOURCES OF ENERGY
(Percentage Share)

Source	1955	1960	1964	1970	1975
Petroleum Fuels	20.4	37.7	55.6	68.1	73.2
Solid Fuels	57.7	46.0	31.4	21.8	17.1
Hydro Electricity	21.4	15.2	11.6	8.3	6.5
Nuclear Electricity	. .	. .	. .	0.7	2.1
Natural Gas	0.5	1.1	1.4	1.1	1.1
Total	100.0	100.0	100.0	100.0	100.0

Source: Institute of Petroleum Review, Vol. 21, 1967, p. 231.

¹W.H. Henderson, "The Oil Industry In Japan", Institute of Petroleum Review, Vol. 21, 1967, p. 230.

²Ibid.

The ever-increasing demand for petroleum can be partially accounted for by the complete reversal in the major source of energy used. Table 28 depicts this quite recent change.

As can be seen, the roles have been completely reversed. Petroleum and solid fuels now account for approximately 70 and 20 per cent respectively of Japan's energy requirements. This is in bold contrast to 1955 when solid fuels accounted for almost 60 per cent of its energy.

Japanese authorities expect petroleum to play an even greater part in providing future energy requirements. By the year 1975 they predict that energy produced from petroleum fuels will rise close to the 75 per cent mark. This prediction is of extreme importance to the entire petroleum industry. If proven to be correct, it will mean that Japan's demand for crude will double that in 1966.

Imports of crude oil totalled 140 million kilolitres, approximately 880 million American barrels, valued at \$1,685 million in 1968.³ The following figures shows how Japan ranked with other countries in terms of imports of crude oil in thousands of barrels per day for 1968⁴:

Japan	2,420
Italy	1,852
West Germany	1,681
United Kingdom	1,653
France	1,543
United States	1,404

³Foreign Trade of Japan, 1969, p. 81.

⁴Petroleum Press Service, 1969, p. 81.

Imports of crude oil into Japan during 1968 increased by 15.9 per cent in volume and 15.7 per cent in total value over 1967 (see Table 29). Almost 40 per cent of all imported crude comes from Iran. Imports from Kuwait and Iraq decreased about 10 and 40 per cent, respectively, over the 1967-68 period. The main reason for the decreased imports from these two sources was because their oil contained much sulphur. This property is not favourable from a pollution standpoint. Reduced imports from the Soviet Union, to the degree of over 60 per cent, can be explained in part by the closure of the Suez Canal which added greatly to the freightage costs. Crude oil imports from Iran, Saudi Arabia and Indonesia were up approximately 24, 24 and 40 per cent, respectively.

Japan also imports crude from her own wells abroad. However, they are not very significant. "The Arabian Oil Company's share in Japan's crude imports has varied between 9 and 13 per cent in recent years."⁴ At present, the only other Japanese-owned crude is found in the Rantau oil-field in North Sumatra, Indonesia. However, crude oil imports from here represented only a fraction of 1 per cent of total imports.

From the early 1930's, the major aim of the Japanese government has been the regulating of the petroleum industry

⁴"Widening Japanese Search," Petroleum Press Service, December, 1969, p. 446.

TABLE 29

ORIGIN, QUANTITY AND VALUE OF JAPAN'S CRUDE OIL IMPORTS
(Quantity = 100 KL^a Value = Millions of Dollars)

Origin	1966		1967		1968	
	Quantity	Value	Quantity	Value	Quantity	Value
Total	99,336	\$1,200	120,622	\$1,457	139,829	\$1,685
Iran	27,620	330	42,304	500	51,673	604
Saudi Arabia	17,397	215	21,215	265	19,215	232
Kuwait	20,817	248	21,659	260	19,215	232
Neutral Zone of Saudi Arabia and Kuwait	15,853	180	17,626	201	18,791	214
Indonesia	6,182	80	7,631	97	10,805	134
Bahrain, Trucial Oman and Qatar	1,567	21	1,849	24	4,877	64
Oman	.	.	1,137	14	4,085	51
Iraq	5,241	67	3,287	41	1,962	26
U.S.S.R.	3,283	40	2,410	32	816	12
Venezuela	533	8	455	7	528	8

Source: Foreign Trade of Japan, 1969, p. 81.

^aOne kilolitre is equal to 6.2898 American barrels.

to make it independent of international control. Prior to World War II there were numerous petroleum laws passed to establish controls over the industry and to promote exploration. A good example is the "Petroleum Resources Development Law" passed in 1938. Its main goal was to promote exploration. As a consequence, in 1941, Japan formed the Teikoku Oil Co. which took over the exploration and producing functions of the private oil companies. Teikoku is owned by the government to the extent of 50 per cent.

From 1949 until 1962 the government, through its Ministry of International Trade and Industry (MITI), exercised control through the granting of foreign exchange allocations for both crude and products.⁶ This form of control was enacted as a result of continuing balance of payment difficulties during these years. The less an oil importer had to pay for his oil, the more foreign exchange he would get to buy it the next time. Foreign exchange was allocated, partly in relation to how much each importer had spent in the previous three months and partly in relation to how much oil he managed to buy with his allotted exchange. Transportation charges in no way affected the allocation of exchange. It was granted automatically. As a result, every Japanese oil importer was under extra pressure to get the biggest possible discounts on posted prices.

Petroleum imports were freed from foreign exchange

⁶J.E. Hartshorn, Politics and World Oil Economics (New York: Frederick A. Praeger, 1962), p. 224.

control when Japan became a member of the International Monetary Fund in 1962. However, in view of exchange control restrictions, an even more stringent control over the petroleum industry was imposed. The Petroleum Law of 1962 established the Petroleum Council. This is a body composed of officials of the oil industry and government, as well as consumers. Although the Petroleum Council is the major regulating body, day-to-day control is exercised by the Mining Bureau of the Ministry of International Trade and Industry. Frequently MITI works very closely with the Petroleum Association--an organization of the majority of oil companies. This association is used extensively by MITI to implement its policies. Once MITI takes a firm stand on any particular subject, it is more or less mandatory for all the oil companies to adhere to and enforce any measures adopted.

Effectively, MITI is able to control all aspects of the industry, and in particular:

1. The construction of new refinery capacity.
2. The level of crude runs and the share of each company.
3. Refinery programs. . . .
4. Allocation of "national oil," such as Khafji.
5. Foreign loans against crude contracts, and hence crude contracts themselves.
6. Capital increases by foreign affiliates.
7. Import quotas for products.
8. Recommendations on standard selling prices for products.

9. Capital investment in marketing and distribution facilities.⁷

The basic attitude of the government has been fundamentally nationalistic. From early times, Japan has had a deep fear of being dominated by foreign interests. As was previously cited, the current policy of the Government of Japan is to limit its dependence on foreign oil as much as possible and to secure an ever-increasing volume of crude from its own controlled producing fields. Just how does the government hope to achieve such aims? In attempting to increase production held by Japanese interests, the government has developed "five-year petroleum rationalization plans." The government is now in its third such plan, which began in 1966. Its main target is to promote oil prospecting to discover reservoirs and to stabilize its crude oil supply throughout the world. To lessen dependence on foreign interests, the Petroleum Development Corporation was formed. It is government-sponsored and has as its major aim the development of nationally controlled overseas crude oil production, to the degree of approximately 30 per cent by the year 1985. Yet further attempts to control its own destiny can be seen in the refinery and marketing divisions. The government proposes to limit reliance of the national refining companies on major international suppliers by limiting the crude supply right of internationals to its own refining affiliates to the level of their equity holding. For example,

⁷W.H. Henderson, op. cit., p. 233.

assume that Esso has a 40 per cent interest in one of the refining companies operating in Japan. In this case, no more than 40 per cent, preferably less, of the crude oil used by this refinery would be allowed to be imported from Esso owned sources. Furthermore, another measure of control that has been proposed is that of limiting the amount of crude oil that can be supplied under a long-term contract against a given level of loan capital.

In the Marketing Division, the government hopes to achieve a greater measure of control by means of rationalization. A prime example of this is provided by the formation of the Kyodo Sekigu K.K. This company, incorporated in 1965, is the result of an amalgamation of three small Japanese owned refiner marketers. It now controls more than 10 per cent of the entire marketing structure of Japan.⁸

To obtain a more precise picture of "what is happening" in the petroleum industry of Japan a more detailed analysis concerning exploration, refining and marketing will now be given.

Exploration

Exploration for independent crude oil resources has been carried on now for over two decades. First efforts were carried out by the Petroleum Exploration Advancement Committee in 1947. Eight years later, the Japan Exploration Co. (Japex) was established. Japex is owned 25 per cent each by Teikoku

⁸ Ibid., p. 235.

Oil and a consortium of Japanese refining companies and 50 per cent by the government. Teikoku Oil is wholly owned by Japanese interests. Japex took over Teikoku's oil exploration concessions and left Teikoku to exploitation of established fields and exploration for gas. In early 1967 the Petroleum Development Public Corporation was formed to promote and coordinate all its overseas exploration. This corporation was solely financed by the government. However, in April of 1970 this company was superseded by the Japan Petroleum Exploration Company. It is capitalized jointly by private industry and the Japanese Government.⁹

Japan's national oil policy is now aimed at supplying 30 per cent of all her crude oil requirements from Japanese-owned sources by 1985. This policy has many implications on both the pattern of overseas operations and also possibly on price.

Japan's crude oil imports of some 140 million kilolitres in 1968 are expected to reach 500 million kilolitres by 1985. This represents an increase of approximately 257 per cent. If the desired level of 30 per cent of "national" oil is to be achieved, the flow of Japanese owned crude must reach 150 million kilolitres by 1985.

Needless to say, fantastic sums of money are required for exploration purposes. It has been estimated that 600

⁹"New Foreign Oil Resources Company Formed," Canada-Japan Trade Council Newsletter, April 1970, p. 12.

billion yen will be required over this period for exploration purposes, with twice as much required for development.¹⁰

Funds thus far have totalled over 47 billion yen. Government funds accounted for some 15 per cent, trading and finance companies 20 and electric companies 12 per cent. It is to be noted that the oil companies, both the majors and Japanese owned, have put up only 9 per cent.¹¹ Other sources of funds came from big industrial users, trading companies and some from private subscriptions. Government funds are provided through the Overseas Economic Cooperation Organization and by the Japan Petroleum Exploration Company.

At first, all exploration was restricted to Japan proper. However, Japanese companies were soon forced to search abroad due to the high costs of home oil and also for a stable and secure supply simply due to the paucity and high costs of domestic reserves. Japan's first overseas exploration was made in 1958 with the founding of the Arabian Oil Company (AOC). This company presently mines offshore concessions in the Kuwait-Saudi Arabia Neutral Zone in the Persian Gulf. AOC struck oil in its first well and immediately proceeded with production. However, due to the fact that AOC was not supported by the established refiners and marketers, this oil was not easy to place in Japanese markets.¹² The government soon came

¹⁰"Widening Japanese Search," op. cit., p. 445.

¹¹Ibid.

¹²See Appendix II, Table 1.

to AOC's rescue by giving this oil preferential treatment. Now, each year MITI forces refiners to take AOC oil on a quota basis. Further incentive to take AOC oil is provided by AOC themselves. They pay a small per-barrel bonus to all companies taking their crude. Platt's Oilgram has revealed that member refiners of the Petroleum Association of Japan have agreed to accept 18 million kilolitres of Arabian Oil's Khafji crude oil during 1969 at a F.O.B. price of \$1.28 per barrel.¹³

The North Sumatra Oil Company of Indonesia (Nosodeco) is the only other Japanese company presently producing abroad besides AOC. At present, Nosodeco oil accounts for less than 1 per cent of imported crude. Nosodeco in conjunction with Pertamina, Indonesia's state oil company, plans to develop 130 wells by the end of 1973.¹⁴ Since Japanese oil refining companies have a financial interest in this agreement, Nosodeco oil has been more readily absorbed into Japanese markets than was the Arabian Oil Company's.

The Japanese-owned Nosodeco's share of production in conjunction with Pertamina was about 10,000 barrels per day in 1968.¹⁵ Nosodeco takes 40 per cent of the additional production in payment for a \$53 million loan in equipment and services.¹⁶

¹³Platt's Oilgram Price Service, A Daily Oil Price Reporting Service, May 1, 1969, p. 1-A.

¹⁴"Widening Japanese Search," op. cit., p. 446.

¹⁵World Petroleum Reports, op. cit., p. 110.

¹⁶Ibid.

The Nosodeco venture in Rantau, Indonesia, marked the beginning of both Government and oil company financial support of any size. Indonesia, along with the rest of Southeast Asia has a tremendous locational advantage over the present operating Persian Gulf wells. The tanker route from Sumatra to Yokohama is some 4,000 nautical miles less than that from the Persian Gulf. Thus, due to both the close proximity and the success thus far, it is not surprising to find the Japanese stepping up their efforts in and around Indonesia.

Japex in late 1965 acquired large concessions off North Sumatra as well as off East Kalimantan. Japex (Indonesia) is backed by the Petroleum Development Corporation to the degree of almost 70 per cent. Japex is just one of some 41 groups of petroleum companies from 9 countries engaged in Southeast Asian offshore exploration. "Japex luck" until now has not been good. "After nearly four years of surveys and exploration drilling off the Indonesian Islands of Sumatra and Borneo, involving expenditures of \$37 million, the company has drilled 11 wells, and has found no commercially exploitable oil."¹⁷ Recent surveys point to vast potential undersea reserves. Companies from the United States, Australia, Canada and Europe, as well as Japan, plan to spend over \$500 million on exploration over the next four years.¹⁸ Seismic tests show promising support for vast reserves extending from Burma and Thailand to

¹⁷ "Report from Southeast Asia," Fortune, March 1970, p. 45.

¹⁸ Ibid.

the shores of Taiwan and Malaysia.

Kyushu Oil Development, another Japanese operator in Indonesia has recently teamed up with Union Carbide. Kyushu after drilling nine dry holes in the region to the south of Borneo felt the need of American expertise. Union Carbide is now an equal partner and operator of Kyushu's exploration in Indonesia.¹⁹ Technicians from the United States, Japan, Taiwan, and South Korea have recently been carrying out tests in the East China and Yellow seas. They are presently under an agreement with the United National Economic Commission for Asia and the Far East (ECAFE). Recent reports indicate that the sea floor between Japan and Taiwan might possess one of the most prolific oil and gas reserves in the world. Oil experts feel that it is possible that this area may possess as much potential as the Persian Gulf.²⁰

Japan has also promising wells in the Malaysian state of Sabah, in New Guinea, as well as in Australia. Sabah Teiseki Oil has concessions covering some 19,000 square kilometers on and offshore Sabah. Teikoku Oil and a French Company "Aquitane" (SNPA) are forming a new company for exploration purposes. Japex (Australia) and SNPA are also involved in a joint venture in New Guinea. In Australia, Japex has teamed up with an Australian Company in order to quicken her exploratory efforts in the Queensland and Coral Sea areas.

¹⁹ Ibid., p. 46.

²⁰ Ibid.

Work is still in the surveying state with drilling activities expected to begin in early 1970.

As was previously stated, Japan is only one of some 41 groups searching for oil in Southeast Asia. However, the only offshore producer at present is the Royal Dutch/Shell group. Shell struck oil in 1963 in Brunei and now has 54 producing wells with a daily capacity of 69,000 barrels. Off Borneo, Shell has been exploring since 1954. Shell now has five producing wells pumping only about 10,000 barrels daily.²¹ In 1966 terms, Borneo capacity alone is approximately 60 per cent as great as Japan's home production. Both of these sources at present would provide less than 5 per cent of her daily needs.

Onshore, Caltex and Stanvac have recently expanded exploration efforts in Indonesia. However, the bulk of exploration is offshore. Recently, IIAPCO, a subsidiary of Natomas Co. of San Francisco and Atlantic Richfield have found some promising oil deposits off the island of Java.²² IIAPCO have been exploring in this Java Sea area since 1968. In the Gulf of Siam, off Thailand, Tenneco, Standard (Indiana), Gulf, Continental, Union and British Petroleum have each invested two million dollars for exploration purposes. Some are presently preparing to drill but as yet no wildcatting has been done. They are awaiting passing of legislation confirming

²¹"Report from Southeast Asia," op. cit., p. 45.

²²Ibid., p. 46.

exploration rights.

Canada and Alaska have also been sites chosen by Japanese interest for potential crude oil supplies. Since 1966, Japanese companies have been active here. "Reports are that Japex (Canada) is prepared to spend \$300 million in Canada over five years and as much as \$1 billion over ten years to get a reliable supply of crude..."²³ In Alberta, Japex (Canada) has already surveyed three separate areas. In the North West Territories it has recently purchased a survey carried out by Shell. In Saskatchewan, drilling activities have been postponed.²⁴

Japex's (Canada) interest in the Athabasca oil sands appears to be waning. Japex (Canada), in association with Union Oil, have called off any further discussion concerning the development of the oil sands. Earlier talks between Japex and Tenneco Oil Company, a subsidiary of Tenneco Inc., an independent American Company, did not materialize. Japanese concern probably can best be summarized by M. Yosheda, Secretary Commercial, Japanese Embassy in Ottawa when he said, "We haven't decided to give up, but our main concern in Alberta is directed to coal."²⁵

²³"Japan," International Petroleum Encyclopedia (Tulsa: The Petroleum Publishing Co., 1967), p. 93.

²⁴"Widening Japanese Search," op. cit., p. 448.

²⁵"Oil Sands Interest Waning," Edmonton Journal, July 24, 1969, p. 6.

In Alaska, Japanese interest is mounting to great heights. Reason for this enthusiasm is two fold: over 90 per cent of Japan's present oil imports are from the Middle East and a diversification of supply is favoured; and the Alaskan fields are some 4,000 miles closer to Japan than are their present Middle East supplies.

Japan's interest in Alaska started in late 1966 with the founding of the Alaskan Petroleum Development Co. Ltd. Their interests here are held jointly with Gulf Oil Corporation. Maruzen Sekiyu and Union Oil of California also joined together in 1967 to explore Union's concessions in the Cook Inlet area. Recent interest has been shown by formation of the North Slope Petroleum Company. Twenty-six major Japanese Companies along with American interests are expected to pool financial resources to increase their exploration activity there.

Refining

Japan's oil refining industry has developed rapidly since the end of World War II. In terms of output capacity, it now ranks third--after the United States and the Soviet Union. Immediately after the end of World War II the Supreme Commander for the Allied Powers issued a directive restricting Japan's refining industry solely to the operation of refineries located in the oilfields on the Japan seaboard and ordered the closure of all other refineries which depended on imported crude. Needless to say, the Japanese oil industry

ceased to make any significant progress until these restrictions were lifted. In early 1950, these bans were removed and the refining of imported crude oil was permitted.

Unlike petroleum exploration, Japanese refinery facilities have not been reserved solely for Japanese companies. It is mainly due to this fact that Japan's refining industry was able to expand so quickly. Large international companies entered into refining partnerships with local enterprises. This great influx of foreign capital, technical skills and equipment--as well as assured crude supplies--proved to be the great boost that was needed. Without foreign affiliations it is highly unlikely that Japan's refining industry would have grown or revived at all.

At present there are approximately twenty refineries in Japan. As of September, 1968 her refining capacity amounted to almost two and a half million barrels per stream day.²⁶

Table 13, Chapter II, gives a rough approximation of Japan's refinery capacity along with the share of American affiliation. This depicts readily the great "inter-play" of the American majors. "As of March 1966, oil companies with foreign affiliates and subsidiaries of international oil companies accounted for 59.3 per cent of total oil sales in Japan, 61.7 per cent of total refining capacity and 58.9 per cent of total paid-up capital of oil companies in Japan."²⁷

²⁶ World Petroleum Report, op. cit., p. 114.

²⁷ Gordon Barrows, "Japan," International Petroleum Industry, (New York, International Petroleum Institute, 1965), p. 185.

As can be seen, these partnerships played a dominant role.

Besides partnerships agreements, foreign loans which are "tied" proved to be very important in determining the extent of Japanese control over her petroleum industry. In the fiscal year 1968 "Japanese refiners took 50 per cent of their crude needs as direct purchases from their foreign partners; an additional 15 per cent came as purchases tied to loans made by foreign firms and some 23 per cent was bought on the open market. . . ." ²⁸ The Ministry of International Trade and Industry, as we have seen earlier, realized that "tied loans" play an important part in deciding who's crude to use and felt this factor must be reduced as much as possible. Even if no direct investment was made in this industry it is still highly probable that "loan control" would be in the hands of the international majors. It (MITI) recommend that this portion of "tied crude," by means of both foreign direct investment and loans, be reduced from its present position of approximately 75 per cent to about 50 per cent. In reply to MITI some oil companies associated with foreign partners maintain that their crude supply contracts do not always call for compulsory buying of their associate's crude. They point out that their contracts often allow for purchasing at competitive prices. ²⁹

The Ministry of International Trade and Industry, as

²⁸"Widening Japanese Search," op. cit., December 1969, p. 445.

²⁹"Japan, New Standards for Refineries," Petroleum Press Service, December 1969, p. 463.

previously seen, directly and indirectly, controls the refining industry. Expansion projects must first be approved before any construction can start. Besides this approval, control is also exercised through the setting of strict building standards. Priority in the latest round of refinery expansion has been given to those refiners who are linked to petrochemical plants, especially those with sure sales outlets for products other than naphtha. The MITI Board hopes to accomplish stability of prices for both gasoline and oil with this move. This recommendation was mainly adopted out of the growing criticism of market disruptions caused by petrochemical complexes whose output was not necessary for the making of products with assured outlets.

Marketing

As of 1968 there were fifteen marketing companies all owning or associated with refineries (see Table 21). Nippon Oil, Idemitsu Kosan and Kyodo are the three largest, in both marketing outlets and in volume of sales. Their market share as of 1965 was 17.5, 16.6 and 10.2 per cent, respectively. Nippon Oil is closely associated with Caltex, whereas, Kyodo Oil Co., Ltd., incorporated in late 1965, is an amalgamation of three minor refiners.

Sales are made largely to big jobber-type dealers. Usually, the dealers own their own depots, retail outlets, truck fleets and, in some cases, even coastal tankers. These dealers are extremely well organized under their own National

Federation. Acting together, they have been very successful in maintaining price to final consumers. Price maintenance is also supported by the government, along with MITI. This existence of a strong dealer system has the direct effect of shifting competition away from the retail level to the oil companies' wholesale selling price.³⁰

In addition, there is an ever-increasing trade directly between the major oil companies and such major consumers as electric power companies and steel mills.

The vast Japanese trading companies are yet another distinctive feature of the marketing structure. Giant international organizations, such as Mitsubishi Shoji, Mitsui Busson and Marubeni-Ida, all have oil departments. They deal extensively in crude and fuel oil imports, as well as in international bunker oil. They also deal in the inland market, mainly in residual fuels to large industries--but increasingly in the retail business. Both their size and integrated business make them formidable competitors.

Retail outlets numbered over 28,000 in 1968.³¹ The majority are either owned or financed by the oil companies, mainly refiners. Nearly all retail outlets are operated by dealers or their sub-dealers, with very few being operated by the oil companies themselves. In Japan the law does not permit exclusive sales contracts. Thus, despite being

³⁰W.H. Henderson, op. cit., p. 235.

³¹"Here's the Oil Marketing Picture in Eight Big Overseas Markets," National Petroleum News - The Magazine of Oil Marketing, Mid-May, 1968, p. 104.

'one-brand' outlets, they are compelled to sell competitors' gasoline and/or lubricants. Needless to say, the oil companies do not like this. In endeavouring to overcome this measure of infringement, the owners are now adopting a system of "consignment sales." Under such a system, all stocks at the outlet remain the property of the supplier. Charges for same are then deducted against the pump meter readings.

An interesting feature of marketing structure is the increasing amount of foreign affiliation. Table 30 gives us some indication of the close affiliation. In addition, the three most important of the unaffiliated companies--namely Idemitsu, Maruzen and Daikyo, have received financial aid from the international oil companies by the way of loans. As a consequence, they are linked to them by supply contracts. Thus, Idemitsu is linked to Gulf, Maruzen to Union Oil and Daikyo with Cie Francaise des Petroles.

In summary, the Japanese Oil Industry has many features which make it extremely attractive for possible Canadian marketing prospects. One of the first things to be noted is the degree of integration. In Japan no companies are fully integrated to the extent which would free them from the importing of crude oil from sources other than their own. It is indeed true that many Japanese Refining and Marketing companies do have some producing interests, but they provide only a small part of their required needs.

In the Refining and Marketing sectors, Japan does allow a maximum of 50 per cent in foreign participation. It is

TABLE 30

FOREIGN AFFILIATION OF JAPANESE DISTRIBUTORS^a

Nippon Oil Co. Ltd.	This company has been closely associated with Caltex ^b since 1949. Caltex and Nippon each hold a 50 per cent interest in Nippon Petroleum Refining Co.
Mitsubishi Oil Co.	Getty Oil Co. and Mission Corporation own 49.7 per cent interest.
Esso Standard Sekiyu K.K.	A wholly owned subsidiary of Esso Standard Eastern Inc. holds a 50 per cent interest in General Gas Co. Ltd., an L.P.G. marketing company and 50 per cent of General Sekiyu Leise K.K.
Showa Oil Co. Ltd.	Shell Group holds 50 per cent of shares issued and fully paid up.
General Lekiyu	50 per cent owned by Esso Standard Sekiyu K.K.
Koa Oil	Caltex holds a 50 per cent interest

Source: Walter R. Skinner, op. cit., various pages.

^aTable 30 does not show wholly owned Japanese Distributors who have received "loan capital".

^bCaltex Petroleum Corporation is jointly owned by Texaco Inc. and Standard Oil Co. of California.

contended that if Japan had more financial resources to devote to oil, this percentage would be much smaller. In the Refining and Marketing sectors, the precise amount of foreign participation is difficult to determine. Ownership and/or control is further extended by loans of various types and amounts. Specific arrangements are not usually made available to the public.

From a marketing viewpoint, Japan appears to present the best possible outlet for Canadian crude oil of all the major consuming countries observed. This can be accounted for by a number of factors. First, there is the tremendous drive put on by Japan in recent years to diversify its crude oil source of supply. Japan, due mainly to national security considerations, does not wish to place all its dependence on only one major source of supply. Second, there is the anticipated expansion of the future petroleum demands. As was stated earlier, Japan's demand for crude will, by 1975, be more than double the amount used in 1966. This could very easily present newcomers, such as Canada, with the outlet needed to gain entrance to the International Petroleum Industry, on a large scale basis. Third, there is the apparent strength of Japan's Ministry of International Trade and Industry. As was pointed out, this body has been invested with powers to control the entire industry from exploration to marketing. One such power, which could be beneficial to Canada, is the ability of the Ministry to determine how much crude refiners can use and also where they obtain it. Last, but not least, there is

the nearness of Canada to Japanese markets. Canada is almost half as far away as Japan's present main crude supplier, namely the Persian Gulf area. With this point in mind, it is the goal of the next section of this paper to explore Japan as the prime potential market area for Canadian crude oil.

CHAPTER VII

CANADIAN MARKETING PROSPECTS IN JAPAN

This section endeavours to look at the present Canadian marketing picture as well as to see if Canada can tap the vast Japanese crude oil market. It has often been said that much of Canada's production is being "locked in" by the Cartel group due to the high price structure and also the lack of aggressiveness taken by the marketers because of affiliated production interests elsewhere. It is hoped that the following discussion will help shed some light on this question.

TABLE 31

CANADA'S CRUDE OIL PRODUCTION BY PROVINCE ('000 Barrels Per Day)

Province	1968 Production	1969 Production	Estimated 1970 Production
Alberta	787.4	900.0	1,000.0
Saskatchewan	251.9	240.4	250.0
British Columbia	63.3	72.2	77.0
Manitoba	16.9	16.9	17.0
North West Territories	2.3	2.4	2.4
Eastern Canada	3.3	3.3	3.3
Total	1,125.1	1,235.2	1,349.7

Source: Oilweek, various issues.

TABLE 32

CANADIAN CRUDE OIL MARKETS
('000 Barrels Per Day)

Market Area	1969 Demand	Estimated 1970 Demand	1970 Demand as Per Cent of Total Production
Ontario	340.0	355.0	26.3
Prairies and N.W.T.	215.0	215.0	15.9
British Columbia	<u>108.0</u>	<u>115.0</u>	<u>8.5</u>
Total Domestic Demand	663.0	685.0	50.7
U.S. Districts I-IV	349.0	480.0	35.6
U.S. District V	<u>209.0</u>	<u>220.0</u>	<u>16.2</u>
Total U.S. Demand	558.0	700.0	51.8
Total Domestic and U.S. Demand	1,221.0	1,385.0	102.5

Source: Oilweek, various issues.

Table 31 depicts Canada's production of crude oil for the years 1968, 1969 and estimated production for 1970. Production for 1968 and 1969 was 1,125,100 and 1,235,200 barrels per day. Production in 1969 was about 10 per cent higher than 1968. The estimated 1970 production is expected to be up again by some 10 per cent to approximately 1,349,700 barrels per day.

The province of Alberta was by far the dominant producer. Alberta's production of 900,000 barrels per day in 1969 was about 70 per cent of all crude oil production in Canada; Saskatchewan was a distant second producing 240,000 barrels per day or some 22 per cent to total domestic production.

Table 31 shows the destination of Canada's crude oil

production for 1969 and an estimate for 1970. As can be seen from the Table only the three Prairie Provinces, Ontario, British Columbia along with the North West Territories are served by Canadian produced crude. In 1969, Ontario was by far the most prominent consumer of Canadian produced crude, using some 340,000 barrels per day. This represented some 27 per cent of total domestic production in 1969. The Prairie Provinces along with the North West Territories and British Columbia each consumed 215,000 and 108,000 barrels per day, respectively.

Export markets, all in the United States, account for some 46 per cent of production in 1969. Of the total 558,000 barrels per day exported to the United States about 63 per cent went to Districts I-IV (east of the Rockies) with the remaining 37 per cent going to District V. The estimated 1970 exports to the United States are expected to increase to about 700,000 barrels per day. This represents an increase of about 25 per cent over the 1969 export figures. Districts I-IV are estimated to take about 68 per cent with the remainder going to markets west of the Rocky Mountains or to District V.

In discussing future potential Canadian crude oil markets a very important factor is that of quantity. Just how much crude oil does Canada have available for export? From Table 31, it would appear that no surplus of crude is available, or, to say the same thing in a different way, that demand just equals supply. However, the term supply, equivalent to capacity, can be given various interpretations. The Oil and

Gas Conservation Board of Alberta, hereafter known as "Board," has identified four types of productive capacity.¹ The four types of capacity and estimated totals in barrels per day for each are given below for 1969.²

1. Peak value of maximum efficient reservoir capacity (Peak MER)	2,282,000
2. Developed wellhead capacity	1,589,300
3. Developed capacity adjusted for fields and processing	1,070,900
4. Developed capacity adjusted for pipe line systems limitations	1,007,400

As can be readily seen, the term "capacity" can take on various meanings. The Board has also estimated the net effective Provincial capacity. It estimated this to be some 95 per cent of the developed pool and system capacities adjusted for field, processing and pipeline limitations or some 957,000 barrels per day for 1969.

Alberta's crude production amounted to some 900,000 barrels per day in 1969, a rate of 94 per cent of net effective Provincial capacity. It therefore appears that practically no markets are being lost as maximum capacity is already being achieved. This is quite true when, as in Alberta, production is limited to existing pipelines, developed wellhead capacity, etc.

¹Oil and Gas Conservation Board, Reserves of Crude Oil, Gas, Natural Gas Liquids and Sulphur, Province of Alberta (Calgary: Oil and Gas Conservation Board, 1969), p. VI-I.

²Ibid., p. VI-13.

When discussing future marketing prospects of Canadian crude oil it would appear obvious that the capacity to use would be the one of Peak MER. This capacity represents the maximum attainable from a well without detriment to ultimate recovery and barring all limitations such as existing pipelines, etc. The Board has estimated that the development of the Peak MER value would require about two years.³ The estimated MER capacity for the next ten years is given by Table 33.⁴

Upon observing that Canadian wells are operating far below Peak MER capacity the next obvious question to ask is that of how much oil can be produced and made available for export provided that all wells were pumping at their Peak MER values.

TABLE 33

CRUDE OIL MER CAPACITY FORECAST^a
('000 Barrels Per Day)

1970	1,750	1976	1,480
1971	2,130	1977	1,260
1972	2,270	1978	1,040
1973	2,140	1979	876
1974	1,970	1980	759
1975	1,770		

^aIn calculating the MER figures, the Board has assumed that production will have occurred at this MER rate for the years involved. Table 32 is also calculated under the assumption that no additional new pools will have been discovered after 1969. Due to this latter assumption, it is believed that the figures are conservative.

³Ibid., p. VI-1.

⁴Ibid., p. VI-14.

A number of assumptions are necessary in order to estimate the amount of oil that is available for export. This is due to lack of facts and also foresight that would enable one to predict various repercussions. The assumptions are as follows:

1. All Alberta wells operate at estimated 1970 MER capacity,
2. All remaining wells operate at estimated 1970 production levels,
3. The 1970 estimated demand of all Canadian markets presently being served by domestic production will be met, and
4. Districts I-IV exports to the United States will continue at 1970 estimated flow and exports to District V will cease. This cessation of exports to District V is assumed because of the need for a two-price system to compete on an international basis.

Using the above four assumptions the amount of oil available for export during 1970 is shown by the following Table.

TABLE 34

CANADIAN CRUDE OIL AVAILABLE FOR EXPORT--1970
('000 Barrels Per Day)

<u>Production</u>		
Estimated production for Manitoba, Saskatchewan, British Columbia and Eastern Canada	350	
Estimated MER production for Alberta	<u>1,750</u>	2,100
<u>Demand</u>		
Estimated Domestic Demand	685	
Exports to United States	<u>480</u>	1,165
Production less Demand		935

From Table 34 it can be seen that substantial quantities are available for export purposes. It is interesting to observe that Canada is capable of fulfilling about 38 per cent of Japan's yearly needs.

Since substantial amounts of Canadian crude oil are available for export, the next and most crucial question to be answered is that of price. In an effort to find out whether or not Canadian crudes could be competitive in Japan on a price basis, the price of Canadian crudes was compared with those countries presently supplying Japan's requirements. The following four price comparisons were made.

1. The laid-down cost of Canadian, Persian Gulf and Venezuelan crude oil in Japan was calculated on present posted prices.
2. The cost per barrel of crude oil landed in Japan was calculated on estimated discounted posted prices.
3. The laid-down cost of Persian Gulf and Venezuelan crude to Japan in 1968 was compared with that of present posted Canadian prices, F.O.B. Vancouver.
4. A comparison was made between Canadian present crude posted price and that of all other countries currently supplying Japan at laid-down price of \$2.00 and over.

It must be noted that the first three price comparisons depict the extremes. Iran and Kuwait were among the cheapest of all Japan's suppliers. Venezuelan crude oil imports were the most expensive at a price of \$2.41 (see Table 35). The fourth comparison represents an "in between" or average price paid by Japanese importers. It should also be noted that a Canadian exchange rate of 0.925 is used throughout the following calculations. Since Canada is now on a floating exchange

rate one must be aware that any increase above 0.925 will have the affect of making Canada's oil exports more expensive. A discussion of each of the above four price comparisons will now be given.

1. Competitiveness Based on Posted Prices

The Board has estimated the laid-down cost of Alberta crude oil to be \$3.11 (Canadian) per barrel for crude F.O.B. Vancouver.⁵ Expressed in American currency the laid-down cost would be \$2.88 per barrel (\$3.11 times .925). The posted price for a comparable crude in Venezuela is \$2.80 F.O.B. Puerto La Cruz.⁶ Thus, the Canadian price is \$0.08 higher than that of Venezuela. Crude from the Persian Gulf area varies somewhat between fields and also with the specific gravity. An average of \$1.80 was taken to be a representative posted price for this region. It is to be noted that the F.O.B. Vancouver price is \$1.08 above that of the estimated Persian Gulf posted price.

Although posted prices give a rough measure of Canada's competitiveness, transportation charges from the supplier to the consumer must not be neglected. Tanker rates from the Persian Gulf to Japan as of July 22, 1970, were World Scale

⁵ Oil and Gas Conservation Board, Alberta Crude Oil Competitive Position - November 15, 1969. (Calgary: Oil and Gas Conservation Board, 1969), p. 5.

⁶ Petroleum Press Service, December 1969, p. 478.

plus 250 per cent per ton for spot fixtures.⁷ This represents a cost per barrel mile of \$0.00026.⁸ For lack of a more precise figure, it is assumed that the above per barrel mile cost figure can also be used for estimating transportation charges from both Venezuela and Canada. The following shows Canada's competitive marketing position with regard to Venezuela and Persian Gulf:

	Persian Gulf	Venezuela	Vancouver
F.O.B. Posted Price per barrel	\$1.80	\$2.80	\$2.88
Transportation Charges ⁹	<u>1.85</u>	<u>2.16</u>	<u>1.11</u>
Laid-Down Cost--Japan	<u>\$3.65</u>	<u>\$4.96</u>	<u>\$3.99</u>

The laid-down costs for the Persian Gulf area crudes are by far the lowest of the three regions observed. Crude oil costs from the Persian Gulf landed in Japan are \$1.31 and \$0.34 lower per barrel than crude from Venezuela and Vancouver. Canadian crude posted prices, F.O.B. Vancouver, would have to be decreased by some \$0.34 from \$3.99 in order to be competitive with those of the Persian Gulf. This represents a decrease of some 9 per cent of the posted price.

⁷ Oil & Gas Journal, July 27, 1970, p. 182.

⁸ Crude of 35 degrees API averages 7.42 barrels per ton. The World Scale 250 of \$13.75 per ton converted to barrels equals \$1.85 ($\$13.75 \div 7.42$). As the distance from the Persian Gulf to Japan is about 7,000 miles this would mean a cost of \$0.00026 per barrel mile ($\$1.85 \div 7,000$).

⁹ Venezuela was estimated to be 8,000 miles from Japan. Therefore transportation charges are 8,000 times \$0.00026 equals \$2.16; Vancouver to Japan was estimated to be 4,260 miles, 4,260 times \$0.00026 equals \$1.11.

2. Competitiveness Based Upon Discounted Posted Prices

Posted prices, as noticed previously, have had no or little meaning since the late 1950's. They are only used for taxation purposes and are in no sense related to the actual or realized prices which oil companies receive. A few examples of the size of the discounts of posted prices should be repeated here. Z.G. Havlena and J.F. Wasmuth estimated discounts of posted prices for both Kuwait and Iran for 1968.¹⁰ It is to be noted that in 1968, Kuwait and Iran combined, supplied over 50 per cent of all Japanese imports. They estimated that in the case of Kuwait, posted prices were discounted by some 24 per cent; Iran, 27 per cent.¹¹ This means that Kuwait's price was not \$1.59, but \$1.20; Iran's price not \$1.79, but \$1.30. Posted prices were also discounted in Venezuela. Latest discounts available were in the order of some 17 per cent.¹² This means a reduction of \$0.47 from the posted price of \$2.80, or \$2.33.

	Kuwait	Iran	Venezuela	Vancouver
Discounted Posted Price ¹³	\$1.20	\$1.30	\$2.33	\$2.88
Transportation Charges	<u>1.85</u>	<u>1.85</u>	<u>2.16</u>	<u>1.11</u>
Laid-Down Cost--Japan	<u>\$3.05</u>	<u>\$3.15</u>	<u>\$4.49</u>	<u>\$3.99</u>

¹⁰ Z.G. Havlena and J.F. Wasmuth, "Competitive Environments of the International Oil Industry," Journal of Canadian Petroleum, (January-March, 1970), p. 15.

¹¹ Ibid.

¹² Shaffer, op. cit., p. 190.

¹³ In this case it is assumed that the F.O.B. Price Vancouver is not discounted.

As before, the Persian Gulf area provided the cheapest source of supply. Venezuela improved her competitive position by the amount of the discount, 17 per cent, but is still \$0.50 more expensive than the Canadian crude oil. In this case, Canada would have to lower her posted price, F.O.B. Vancouver, by \$0.94 or by some 33 per cent in order to be competitive with crude supplies from Kuwait.

3. Canadian Prices Compared with Actual Paid Prices from Iran and Kuwait

Table 30 of Chapter VI denotes the quantity and value of crude oil imports for Japan for 1968. In 1968, Japan imported about 140 million kilolitres or 880 million barrels of crude oil from various sources at a total cost of U.S. \$1,685 million.

TABLE 35

SOURCE, GALLONAGE AND LAID-DOWN COST PER BARREL
FOR JAPAN'S CRUDE OIL IMPORTS, 1968

Source	Quantity ('000 Barrels)	Value (\$ Million)	Cost Per Barrel L.D.C. Japan
Iran	325,013	604	\$1.86
Saudi Arabia	166,088	330	1.99
Kuwait	120,858	232	1.92
Neutral Zone of Saudi Arabia and Kuwait	118,192	214	1.81
Indonesia	67,961	134	1.97
Bahrain, Trucial, Oman and Qatar	30,675	64	2.09
Oman	25,694	51	1.99
Iraq	12,341	26	2.11
U.S.S.R.	5,133	12	2.34
Venezuela	3,321	8	2.41
Total	879,496	1,685	. .

Table 35, converted from Table 27 of Chapter VI, depicts the source, quantity, value and laid-down cost of Japan's crude oil imports for 1968. As can be seen, the Neutral Zone of Saudi Arabia and Kuwait provided Japan with the cheapest crude at a landed price of \$1.81 per barrel. Iran and Kuwait followed closely with a price of \$1.86 and \$1.92 respectively. The most expensive crude came from Venezuela at a cost of \$2.41, some \$0.55 over crude from Iran.

During 1968, tanker rates from the Persian Gulf to Japan for dirty cargoes averaged Intrascacale less 35.8 per cent.¹⁴ The Persian Gulf--Japan intrascale rate for 1968 was \$5.86 per ton. This would make the per barrel transport cost about \$0.51.¹⁵ Cost per barrel mile was calculated to be \$0.0000723.¹⁶

	Iran	Kuwait	Venezuela
Laid-down cost--Japan (per barrel)	\$1.86	\$1.92	\$2.41
Less Transportation	<u>.51</u>	<u>.51</u>	<u>.58</u>
F.O.B. Discounted Posted Price	<u>\$1.35</u>	<u>\$1.41</u>	<u>\$1.83</u>

The above F.O.B. discounts of posted price for Iran is approximately 25 per cent assuming a posted price of \$1.80. In the case of Kuwait, the discount is about 22 per cent.

¹⁴"Crude Evaluation," The Oil & Gas Journal, June 15, 1970, p. 80.

¹⁵Per barrel transport costs were calculated as follows: Intrascacale less 35.8 per cent divided by the barrel/ton conversion factor of 7.4

¹⁶Mileage from Persian Gulf to Japan was estimated to be 7,000. Cost per barrel divided by mileage equals cost per barrel mile ($7,000 \div \$0.51 = \0.0000723).

The discount on Venezuela's posted price of \$2.80 was calculated to be 35 per cent in order to make the delivered cost of Venezuela's crude oil to Japan be \$2.41.

Just how much does Canada's posted price of \$2.88 have to be reduced in order to make her competitive under this set of prices? First, if Canada need only be competitive with the Venezuelan delivered price of \$2.41 per barrel, its price now must be reduced to \$2.10 if transport costs of \$0.31 are assumed. This means a discount of about 27 per cent of the present \$2.88 price. However, in order for Canadian crude to be competitive with crude from Iran, Canada's price must be discounted by some 46 per cent.

4. Canadian Prices Compared with a Laid-Down Cost of \$2.00

Venezuela, the U.S.S.R., Iraq, Bahrain, Trucial, Oman and Qatar all exported oil to Japan at a laid-down price of \$2.00 or more per barrel. Total imports from the above countries totalled about 51 million barrels or some 6 per cent of Japan's total imports of crude oil. What must Canada's posted price be, F.O.B. Vancouver, in order for it to be competitive with the above countries? If one, as in comparison 3, assumes transport cost to be \$0.31 per barrel, Canada would be forced to discount its Vancouver price to \$1.69 from \$2.88 (\$2.00-\$0.31); this is a reduction of the present posted price of 41 per cent.

Just what do these substantial discounts mean to Canada and can it afford to apply them? One way to see if Canada

would be willing to do so is to take a glance at both the Federal Government's share of revenue and that of the Oil Companies' generated from sales at the discounted prices.

TABLE 36

OIL COMPANY PROFIT PER BARREL UNDER
VARIOUS DEGREES OF COMPETITION

	Case I	Case II	Case III
F.O.B. Vancouver ^a	\$2.88	\$2.88	\$2.88
Less: Pipelines costs	<u>.45</u>	<u>.45</u>	<u>.45</u>
Posted Price Alberta	2.43	2.43	2.43
Less: Discount	<u>. .</u>	<u>.78</u> (27%)	<u>1.33</u> (46%)
	2.43	1.65	1.10
Less: Costs	<u>.75</u>	<u>.75</u>	<u>.75</u>
	1.68	.90	.35
Royalty 11.2 per cent	<u>.27</u>	<u>.27</u>	<u>.27</u>
(Calculated on Posted Prices)	1.41	.63	.08
Federal Tax 33.3 per cent	.47	.21	.03
Profit accruing to Oil Company	.94	.42	.05

^aAll figures are in U.S. Currency (1969 - 92.5%).

Case I, Table 36, shows the revenue accruing to the Oil Company and to the Governments (Provincial and Federal), if markets were available in Japan without discounts being offered. As previously stated, the laid-down cost at Vancouver from Alberta wells is \$2.88. Pipeline costs via the Trans-Mountain-Pipeline were calculated to be \$0.45. This makes the posted wellhead price for Alberta crude \$2.43. The

cost figure of \$0.75 is composed of the following: Exploration \$0.11; development and drilling \$0.06; land \$0.13; producing facilities \$0.09 and lifting \$0.36.¹⁷ From the gross operating profit of \$1.68, Provincial royalties of 11.2 per cent calculated on the posted price were found to be \$0.27 per barrel. Federal taxes of 50 per cent less 33.3 per cent for depletion allowance equals an effective tax rate of 33.3 per cent. In this case, taxes accruing to the Federal Government amounted to \$0.47. The remaining \$0.94, going to the Oil Company, represents a return of some 39 per cent when calculated as a percentage of the posted wellhead price.

Case II, Table 36, shows the revenue accruing to the Oil Company and Government if Canadian oil need only be competitive with crude from Venezuela in Japan. It is to be noted that although Provincial royalties remain the same because they are based on posted wellhead prices, not discounted ones, the share accruing to the Federal Government and to the Oil Company is about halved from the case where no discounts are given.

Case III depicts the gloomy picture of what will happen to revenues when and if Canadian crudes are discounted in order to be competitive with those from the Persian Gulf. As can be readily seen, both Federal Government and Oil Companies' revenues fall drastically. The Federal Government's share decreases from \$0.47 to \$0.03, the Oil Company's share from \$0.94 to \$0.05 per

¹⁷ See Oilweek, February 23, 1970, p. 82. All costs have been converted to American dollars at an exchange rate of .925.

barrel. Canada's competitive position based on a \$2.00 per barrel laid-down price in Japan is not included in Table 36. Profits accruing to the Oil Company would only increase by \$0.03 above those calculated for Case III, or to \$0.08 per barrel.

In summary, the future marketing position for Canadian crude oil does not appear to be all that competitive. As can be seen by reviewing Table 36, Canada must discount her crude oil posted price by some 27 per cent merely to be competitive with Venezuelan crude landed in Japan. In 1968 Venezuelan exports to Japan totalled only 3,321,000 barrels or about 1 per cent of all Japanese imported crude oil for the same year. So, even if Canada discounted in order to obtain the Venezuelan market in Japan, the entire share would only account for about four days' potential supply of Canada's exportable crude.

In the case of competing with the Persian Gulf area, the picture appears almost hopeless. This can be noted by reviewing the tremendous drop in the revenues accruing both to the Oil Company and to the Federal Government. In order to be competitive with the Persian Gulf, Canada's crude oil had to be discounted by some 47 per cent. In this case profits accruing to the Oil Company were a mere \$0.05 per barrel.

In the case of competing with the countries currently supplying Japan with crude oil at a laid-down cost of \$2.00 or more, it was found that Canada must decrease her present posted price, F.O.B Vancouver, by some 41 per cent. This would leave the revenues going to both levels of governments,

as well as Oil Companies, at about the same level as those calculated for Case III. If Canada did decide to compete with other countries at a \$2.00 laid-down price, and if Canadian marketers were successful in displacing all countries presently supplying at this price, it would succeed in capturing about 6 per cent of Japan's crude oil imports. Assuming Canada has an exportable quantity of 935,000 barrels per day, it would take only 55 days to fill the capturable market.

Thus, from the above analysis it appears that Canada's marketing prospects for crude oil in Japan are not all that favourable. However, it is wholeheartedly admitted that the above figures are at best only a "crude" approximation. It is quite probable that some barter arrangements could be arranged between Japan and Canada which could alter the entire picture.

CHAPTER VIII

SUMMARY AND CONCLUSIONS

The foregoing discussion of the international oil industry points to one quite obvious fact, namely the dominant role played by the eight members of the Cartel group in all the phases of the industry and in virtually all countries outside the Soviet Bloc. From exploration down through to marketing, their position practically overshadows the Independent companies.

As can be seen from Chapters I, II and III, Cartel members acting individually and collectively controlled about 90 per cent of all production in the countries observed, namely Venezuela, Iran, Abu Dhabi, Iraq, Qatar, Kuwait, Saudi Arabia, Indonesia and the Neutral Zone. Independents accounted for some 8 per cent and State owned operations the remaining 2 per cent.

In the Refining sector, once again Cartel control was dominant. Of the eight major countries considered, France, Italy and the United States were the only countries where the Cartel share was as low as 50 per cent.

In Marketing, a similar pattern existed. Cartel control, based upon the number of retail outlets operated, can be summarized as follows: West Germany, 58 per cent; France, 83; United Kingdom, 81; and Canada, 77 per cent. Information

regarding gasoline sales was available only for France and for twelve states of the United States. Here, Cartel control was 62 and 58 per cent, respectively.

In terms of Canada's position within the international structure, the most probable marketing prospect for Canadian oil appeared to be Japan. Despite the almost 50 per cent control of Cartel members in both Refining and Marketing, other factors tended to offset this relatively closed market structure. The most obvious factors are the following: (1) the projected increase in consumption of crude oil where demand is expected to double 1966 requirements by 1975; (2) the powers and disposition of the Ministry of International Trade and Industry with respect to favouring Japanese controlled or independent sources of crude supply; and (3) the relatively close proximity of Canadian crudes to Japanese markets in comparison with those of Kuwait or Iran. However, upon further investigation, it was concluded that the posted price of Canadian crudes would have to be reduced by some 27 per cent in order to compete directly with Venezuela on a price basis; and by almost 50 per cent in order to compete directly with delivered crudes from the Persian Gulf area.

As summarized in Table 35, Chapter VII, discounts of this magnitude would lead to prices which approach estimates of the long-term unit cost of production for Western Canadian crude. Coarse as these cost estimates may be, there is at least an indication that direct price competition with Middle Eastern sources is not likely to be attractive. It appears that competition of this kind would be successful only under

conditions where price discrimination could be practiced such that the lower prices to offshore (Japanese) markets are nevertheless higher than the long-term incremental costs of lifting and transporting. Any such scheme is not without its disadvantages. To make such a plan feasible, effective separation of the combined North American markets from those of Japan would have to be achieved. This is necessary so as to assure that sales to offshore destinations at discounted prices, do not find their way back into North American consumption channels at lower cost than overland supplies. To achieve adequate artificial isolation of North American markets from those in Japan or other offshore points may require legislation and adequate measures for supervising or policing market movements and practices. For example, export licenses could be granted, subject to surveillance by Canadian officials, to assure that crude oil destined for offshore markets is not trans-shipped or resold to unauthorized parties. Any such development of the necessary marketing arrangements and facilities to promote a two-price system of this kind would undoubtedly involve active and direct government participation outside the orbit of existing marketing arrangements as practised by the international Cartel. On the other hand, if it is indicated that the Canadian crude oil industry must continue to carry shut-in capacity and ample proven reserves in the ground, then what might be done to insure a maximum extraction of economic rent via taxes and royalties on the part of all levels of government? Are there any sound reasons why the international

majors should be permitted or encouraged to explore and to hold additional shut-in capacity beyond a reasonable point? Perhaps it would be best if such excess reserves were in the hands of the government or independents with mixed corporate interests which may ultimately be able to exert a greater measure of influence over international marketing arrangements in the future.

Furthermore, assuming that Japan does arrange to buy Canadian crude, the question of who will, or must sell at discounted prices has to be answered. Should all producing companies be forced to sell at these relatively low prices, or should it be voluntary? This question involves the entire market prorationing system as presently practised in the Alberta oil industry. Forcing each producer to sell quantities based upon capacity and/or excess reserves held might be the fairest way. However, producing companies without marketing interests in Canada should not be limited if they desire to sell more at the discounted price than permitted under any prorating scheme. Thus, as can be seen, a more detailed analysis must be made before one dismisses the idea of Canadian oil being competitive in Japan.

APPENDIX I

TABLE 1

OWNERSHIP AND PRODUCTION INTERESTS OF CARTEL, JOINT CARTEL,
INDEPENDENTS AND STATE IN PRODUCING AND EXPORTING
COUNTRIES, 1968

Venezuela

"Cartel" Companies

Creole Petroleum Company--Esso 95.41 per cent
Compania Shell de Venezuela--Shell 100 per cent
Mene Grande Oil Company--Gulf 100 per cent
Texaco Maracaiba Incorporated)
Texas Petroleum Company) Texaco 100 per cent
Coro Petroleum Company)
Mobil Oil Co. de Venezuela--Mobil 100 per cent
Chevron Oil de Venezuela--Standard (California) 100 per cent

"Independent" Companies

Venezuelan Sun Oil Co.
Sinclair Venezuelan Oil Company--96.99 Sinclair Oil
Continental Oil
Signal Oil & Gas

"State" Company

Carvepet (C.V.P.)

Venezuela

"Cartel" Companies

	Production (000 b/d)	Per Cent (%)
Creole	1,480	41.05
CSU (Shell)	922	25.57
Mene Grande	397	11.01
Texaco Group	179	4.96
Mobil	124	3.43
Chevron	54	1.49
	<u>3,156</u>	<u>87.51</u>

--continued--

TABLE 1 - Continued

<u>Venezuela (continued)</u>	Production (000 b/d)	Per Cent (%)
<u>"Independents" Companies</u>		
Venezuelan Sun	242	6.71
Sinclair	66	1.83
Phillips	56	1.55
Continental	13	.36
Signal	10	.27
Others	45	1.24
	<u>432</u>	<u>11.96</u>
<u>State "CUP"</u>	<u>17</u>	<u>.53</u>
	<u>3,605</u>	<u>100.00</u>
<u>Kuwait</u>		
<u>"Cartel" Joint Companies</u>		
Kuwait Oil Company	<u>2,421</u>	<u>100.00</u>
BP 50		
Gulf 50		
<u>Neutral Zone</u>		
<u>"Independents"</u>		
American Independent Oil Company (AMINOIL)	432	58.60
Phillips 37.34		
Signal 33.57		
Ashland 14.13		
Getty 14.96		
Arabian Oil Company (AOC)	305	43.40
(Various Japanese Companies Japanese and Arabian Government each hold 10 per cent)		
	<u>737</u>	<u>100.00</u>

--continued--

TABLE 1 - Continued

<u>Indonesia</u>		
	Production (000 b/d)	Per Cent (%)
<u>"Cartel" Joint Companies</u>		
Caltex Petroleum Corp. (50 per cent each by Standard (California) and Texaco)	392	70.00
P.T. Stanvac Indonesia (Standard (New Jersey) and Mobil each hold 50 per cent interests)	51	9.00
<u>"Independent"</u>		
Sinclair	3)	5.00
Others	25)	
<u>"State"</u>		
Pertamina	90	16.00
	<u>561</u>	<u>100.00</u>
<u>Iran</u>		
<u>"Cartel" Joint Companies</u>		
Iranian Oil Participants (BP 40 per cent, Shell 14 per cent, Socal, Esso, Mobil, Gulf and Texaco 7 per cent each, CFP 6 per cent and Iricon 5 per cent)	2,510	90.00
<u>"State" and "Independents"</u>		
Societe Iranienne Italiene des Petroles--SIRIP (NIOC 50 per cent, ENI 50 per cent)	330	10.00
Iran Pan American Oil Co.--IPAC (NIOC 50 per cent, AMOCO 50 per cent)		
Lavan Petroleum Company (NIOC 50 per cent, Arco, Murphy, Sun and Union 12.5 per cent each)		
	<u>2,840</u>	<u>100.00</u>
--continued--		

TABLE 1 - Continued

<u>Saudi Arabia</u>	Production (000 b/d)	Per Cent (%)
<u>"Cartel" Joint Companies:</u>		
Arabian American Oil Company-- Aramco	<u>2,830</u>	<u>100.00</u>
Socal 30		
Texaco 30		
Esso 30		
Mobil 10		
 <u>Iraq</u>		
<u>"Cartel" Joint Companies</u>		
Iraq Petroleum Company (Shell, C.F.P., BP and Esso/Mobil each hold 23.75 per cent interest; Partex 5 per cent)	1,116	75.00
Mosul Petroleum Company (same as above)	27	3.00
Basrah Petroleum Company (same as above)	<u>335</u>	<u>22.00</u>
	<u>1,478</u>	<u>100.00</u>
 <u>Qatar</u>		
<u>"Cartel" Joint Companies</u>		
Qatar Petroleum (same as Iraq Petroleum)	183	54.00
Shell Company of Qatar	<u>155</u>	<u>46.00</u>
	<u>338</u>	<u>100.00</u>

--continued--

TABLE 1 - Continued

<u>Abu Dhabi</u>	Production (000 b/d)	Per Cent (%)
<u>"Cartel" Joint Companies</u>		
Abu Dhabi Petroleum Co. Ltd. (Shell, CFP, BP along with Esso/Mobil each have 23.75 per cent interests. Partex 5 per cent.)	315	67.00
Abu Dhabi Main Areas	156	33.00
BP 66.66 per cent		
CFP 33.33 per cent		
	<u>471</u>	<u>100.00</u>

Source: Petroleum Press Service, various issues;
Walter R. Skinner, Oil & Petroleum Year Book (London: Eden
Fisher 'Southend' Ltd., 1968), various pages.

APPENDIX II

TABLE 1

OWNERSHIP OF JAPANESE OVERSEAS' EXPLORATION/DEVELOPMENT COMPANIES, 1969

Neutral Zone: 1958	Qatar: 1969	% Shares	% Shares
Arabian Oil Company	Qatar Oil Company (Japan)		
Saudi Arabian government	(original shareholding)	10.0	
Kuwaiti government	Sumitomo group companies (3)	10.0	15.9
Electric power companies	Oil companies (6)	15.8	35.3
Finance companies	Electric power companies (3)	12.5	26.5
Trading companies	Iron and Steel companies (2)	9.0	5.9
Iron and Steel companies	Others (3)	6.2	16.4
Insurance companies	(now reported to include also)	4.1	
Gas companies	Petroleum Development Corporation	2.3	n.a.
Japanese private subscribers	Idemitsu Kosan	30.1	n.a.
	Toa Nenryo		n.a.
	Others		n.a.
Abu Dhabi: 1968			
Abu Dhabi Oil Company	Indonesia: 1960		
Maruzen Oil	North Sumatra Oil Development Corporation	26.7	
Daikyo Oil		26.7	
Nippon Manufacturing	Overseas Economic Cooperation Funds	26.7	37.5
Petroleum Development Corporation	Petroleum Development Corporation	20.0	5.0
	Oil Companies (18)		22.3
Abu Dhabi: 1968	Trading companies (9)		15.0
	Iron and Steel companies (6)		6.7
Middle East Oil Company	Equipment companies (11)		6.4
Petroleum Development Corporation	Electric power companies (3)	38.5	4.3
Mitsubishi group companies (5)	Others	57.7	2.8
Others (2)		3.8	

--continued--

TABLE 1 - Continued

Indonesia: 1966	% Shares	Malaysia: 1969 (continued)	% Shares
Japex Indonesia		Other Sumitomo group companies	44.0
Petroleum Development Corporation	68.2	Teikoku Oil	18.0
Mitsubishi group companies	11.2		
Mitsui Trading Company	8.4	New Guinea and Queensland: 1966	
Others (8)	12.2	Japex (Australia)	
Indonesia: 1967		Petroleum Development Corporation	100.0
Kyushu Oil Development ^a			
Kyushu Oil Company	12.0	Canada: 1966	
Nippon Oil Company	8.0	Japex Canada	
Yawata Iron & Steel Company	12.0	Petroleum Development Corporation	100.0
Trading companies (6)	26.0		
Electric Power companies (4)	24.0	Alaska: 1966	
Gas companies (2)	8.0	Alaskan Oil Development	
Others (6)	10.0		
Malaysia: 1964		Teikoku Oil Company	3.75
Sabah Teiseki Oil		Oil refining companies (18)	12.5
Teikoku Oil Company	83.3	Electric power companies (9)	12.5
Petroleum Development Corporation	16.7	Trading companies (7)	23.75
		Finance companies (6)	10.0
		Iron and Steel companies (5)	10.0
Malaysia: 1969		Shipbuilding companies (5)	7.5
Sabah Offshore Oil		Tanker and shipping companies (16)	5.0
Sumitomo Trading Company	38.0	Petrochemical companies (5)	2.5
		Gas companies (3)	2.0
		Others	10.5

Source: Petroleum Press Service, December 1969. ^a 50 per cent Union Carbide

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